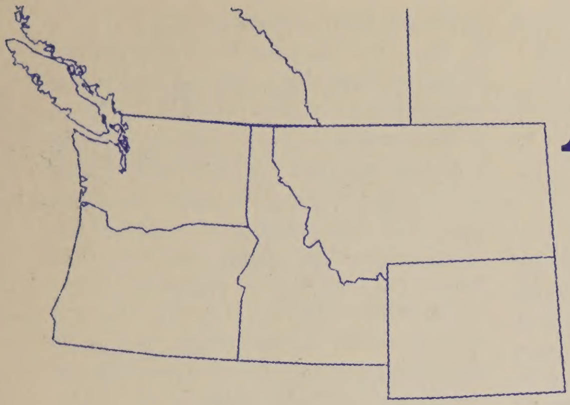

Northwest Amateur Packet Radio Association

Dedicated Link

Volume 1 | Issue #1 | Fall 1992

Editor's Column

Welcome to the first edition of the NAPRA Dedicated Link. As of May of this year NAPRA has committed to publishing four issues of this magazine a year. What this magazine will look like will be an evolutionary process. This first issue's form is copied from the NEDA Quarterly which I edited for a year. I'd like to thank everybody who helped on this issue:

KA7EHK did an excellent job on coming up with more than a dozen brand new maps.

KA7TTY did his usual excellent job recording and transcribing the board of directors meeting minutes.

Thanks to everybody who gave me articles for the newsletter. Thanks to those clubs and packet groups that gave me meeting minutes, reports and schedules.

N7ENT was NAPRA's editor for a year ending with his resignation from that position on July 15 of this year. The position is up for grabs at this time but I volunteered to do the job until we get a new volunteer. The job is actually not as difficult as it looks. A professional printer takes a master copy of the newsletter and makes all of the replications and does the bindings. KA7EHK, Jim, supplies the maps in a format that is directly shippable to the printer. KA7TTY supplies ready copy for the minutes. Most of the articles are grabbed off of packet or from other clubs' magazines including NCPA, NEDA, ARRL and others. It's a fun job that takes about three evenings and two full weekends four times a year (if you don't get carried away like I do!).

The club has been through some hard times. I hope that as a team we can pull the club together and do some good. I have an article in this issue about where I think NAPRA is going. The trick to making NAPRA into one of the best clubs in the world is volunteers. It's very easy to have fun while helping your community, unless you volunteer to do *several* jobs. Helping the community is what amateur radio is all about, yes?

If you have any comments, articles or questions about or for the Dedicated Link feel free to send them to me, KA2DEW @ N7IIJ.wa or telephone me at 206-743-6283. My mailing address for submissions or whatever is 3417 177th Pl SW Lynnwood WA 98037. Send me articles via packet or via most usual formats of Mac and PC floppy. Send in Microsoft WORD format if possible and in ASCII if not. I'm very interested in seeing newsletters from other clubs that do packet radio so if you have access to these or are involved with these clubs please get in touch.

A last word: If you haven't been to a packet radio meeting in the past 3 months it's time to find one. If there isn't one, call one. If you don't have a place to have your meeting try a local restaurant. Publicize your meetings, via packet and via other club newsletters. Send me info and we'll publish it here as well. Thanks.

73 and happy packeting!

—Tadd, KA2DEW
NAPRA acting editor

Dedicated Link: A radio path shared by two and only two radios. For packet radio this represents the optimum (by several times) method of connecting network sites and services.

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Warning!!! See page 25
Do not use PKZIP version 2.01!!!

Minutes of the NAPRA BOD Meeting Mar 14, 1992

I. Call to Order

The Board of Directors meeting was called to order 10:27 AM at the Radio Club of Tacoma ham shack by President Ken, N7IPB. Attendees were:

Ken Koster	N7IPB
Scott Cronk	N7FSP
Peter Dahl	WA7FUS
Peter Kallio	N7ENT
John MacDuff	KA7TTY
Conrad Thompson	N7DUO
John Painter	N0NDO
Tadd Torborg	KA2DEW
Dennis Goodwin	KB7DZ arrived late.

1. N7IPB resigns

Ken, N7IPB, began with comments on his views of the current situation within NAPRA and his difficulty working in the current environment and ended by submitting his resignation and leaving. The meeting continued with Scott, N7FSP Tech VP (next in succession) as chairman. The Board continued discussions on the goals and directions of NAPRA and the need for better exchange of information between Sysops, TCP/IP users, and general AX.25 users.

II Old Business

1 Treasurer's report

Peter, WA7FUS, Treasurer, presented his list of NAPRA owned equipment and it's last known location as follows:

NAPRA Owned Equip - Mar 14 1992
Best info at this time

1	Icom IC-37 transceiver (Green Mountain)	#SEAW
2	Icom IC-37 transceiver	N7IPB
3	Astron Power Supply	N7IPB
4	9600 TexNet Modem	N7IPB
5	9600 TexNet Modem	KD7NM?
6	4800 baud HAPN modem	?
7	4800 baud HAPN modem	?
8	MFJ TNC	SEA
9	MFJ TNC	#SEA
10	MFJ TNC	SEAW
11	MFJ TNC	#SEAW
12	Octopus diode board	N7FSP
13	Octopus diode board	SEAW
14	MVP radio	N7IPB
15	MVP radio	N7IPB
16	ShareWare Database SW	N7ENT
17	MS/DOS XT w/ monitor	WA7FUS
18	Tiny II TNC ?	?
19	Tiny II TNC ?	?

Anyone with knowledge of any other equipment owned by NAPRA, or anyone with information on any of the question marks should contact Peter, WA7FUS @ N7FSP.

Peter then gave the Treasurer's report of activity since the last BOD meeting:

Treasurer's Report
For period ending 3/14/92

Dues Received (6)	90.00
Bank Charges	8.00
Expenses	0.00
Ending Balance	**$1695.14**

Peter indicated that the bank charge was something new that the bank started in January. He plans to look into moving or changing the account to get a better deal. It was felt that not being officially registered as a Not For Profit corporation might be causing some of the problem.

2. Tech VP Report - Scott, N7FSP

1. The SuperSwitch software is functioning and working great on the ALKI node cluster.

2. Scott has a 440 transceiver which is being modified for 9600 baud for his link to the SEA cluster.

3. Doug, WB6VAC, is planning to reuse the same 220 frequency currently being used between SEA and ELN for the link from SEA to SEAW. The plan is to use directional antennas at low power (about 1 watt) located low and on opposite sides of the building at SEA.

3. Secretary's report

John, KA7TTY, read the minutes of the last BOD meeting and they were approved as corrected.

III New Business

1. N7IPB's resignation

The BOD voted to accept Ken's, N7IPB, resignation. This leaves us with 2 vacancies on the Board. After much discussion, the Board appointed John, N0NDO, and Tadd, KA2DEW, to fill the 2 vacancies. After more discussion the Board agreed to fill the positions as follows:

President	Tadd	KA2DEW
Executive VP	John	N0NDO
Tech VP	Scott	N7FSP
Treasurer	Peter	WA7FUS
Secretary	John	KA7TTY
At Large	Peter	N7ENT
At Large	Steve	N7HFZ

Tadd, KA2DEW, took over chairing the meeting at this point.

2. BOD Meeting Scheduling

There was renewed discussion of BOD meeting times and frequency, but it was decided that the current plan to have BOD meetings before the General Meeting each month should continue. There is however a problem with the June meetings. There is conflict with the Salem Oregon Ham Fest, and later that month is Field Day. It was decided that there would NOT be a General meeting on June 13th. There would be a BOD meeting on June 20th in Lynnwood at KA2DEW's QTH at Noon.

3. North/South Cluster Reps and BBS coordination

John, KA7TTY, Secretary, asked for new BOD direction on 2 items:

1. Re: The notice for North and South Cluster representatives to NAPRA: There was much disagreement concerning the content of the notice, and a clarified BOD position was needed. The BOD decided to place this item on hold for reconsideration at a later time. No notice will be sent out at this time.

2. Re: The bulletin asking for simplex comments: The only comment came Peter, N7ENT, concerning BBS coordination. The BOD agreed that we were in the business of coordinating Nodes, but only acknowledging BBSs. The reference to BBSs will be removed and the bulletin sent out.

4. NAPRA network guidelines

Scott, N7FSP, Tech VP, has received a request from KA7TBU in Shelton to connect his BBS into the network somewhere. The discussion that followed centered on the need for some published guidelines for the packet community for expanding the network. Three recommendations came out of the discussions:

1. NAPRA recommends that all new links between node servers be point to point links.

2. We recommend that any new station seeking a network connection work with the existing Node Sysop to establish new point to point links. NAPRA will be in a position to recommend nodes from which a connection may be possible.

3. We further recommend that all existing links be converted to non 2 Meter point to point links.

Continued on page 26

NAPRA Officers and Appointees

Board of Directors:

		Home BBS
John Painter	N0NDO	
Tadd Torborg	KA2DEW	N7IIJ.wa
Peter Dahl	WA7FUS	WB7DCH.wa
John MacDuff	KA7TTY	N7ENT.wa
Bill Heaton	N7WRI	KB7CNN.wa
Pete Kallio	N7ENT	N7ENT.wa

Appointees:

Chairman:	Tadd Torborg	KA2DEW
Treasurer:	Peter Dahl	WA7FUS
Membership:	Pete Kallio	N7ENT
Editor:	Pete Kallio	N7ENT
Recording:	John MacDuff	KA7TTY

Board Member Alternates:

N0NDO:	unassigned
KA2DEW:	unassigned
WA7FUS:	unassigned
KA7TTY:	unassigned
N7WRI:	unassigned
N7ENT:	unassigned

Elmers
to be assigned

NAPRA Contact People

This information is provided by your editor based on information supplied by the members who volunteered. At the next board meeting the BOD will be considering names and callsigns for appointments to the office of Elmer. Elmers are those who would be on this list.

These are volunteers and will try to help with answering questions or putting people who are interested in helping in touch with whomever would be most useful. Keep in mind that these people are NAPRA contact people and may or may not represent any specific networking or BBS operating interest. People who would be able to serve the community by being placed on this list (or volunteering to be an Elmer) should contact a Director.

TheNET networking techniques
NAPRA administration
John MacDuff, KA7TTY @ N7DUO.wa
206-392-7623
620 South East Bush St Issaquah WA 98027

Newsletter Editor
NAPRA administration
Tadd Torborg, KA2DEW @ N7IIJ.wa
206-743-6283
3417 177th Pl SW Lynnwood WA 98037

TheNET networking techniques
TheNET networking progress, eastern WA and Idaho
Ray Knoff, AA7GV @ WB7DOW.id
208-875-1486 best in AM
Hiawatha Apts #404 POB 129 400 6th St Potlatch ID 83855

TheNET networking progress, north Puget Sound
Ken Dickinson, N7QAN @ N7QAN.wa
1930 Harrison St. Mt. Vernon WA 98273

Maps
Server List
Jim Wagner, KA7EHK @ WG7J
503-928-7869
31677 N Lake Creek Drive Tangent OR 97389

Board Meeting October 24th - Lewiston

The fall 1992 Board of Directors meeting will be held on Saturday October 24th, 1992 from 1PM to 7:00PM at the college in Lewiston Idaho. This meeting is open to all *full voting* members of NAPRA. Submissions for agenda items must be received a week before the meeting. Send your submissions via mail or packet (or telephone!) to the the chairman of the board (listed on the left). Any who attends may join NAPRA or upgrade from Associate to Voting membership. Please send a note to the chairman indicating your intention to come to the meeting so we can produce the appropriate copies of the agenda and other materials.

The Board of Directors meeting is fully recorded in the minutes which will be printed in the next *Dedicated Link.* Board meetings are mostly concerned with administrative detail for the club. See Local Meeting Announcements for information on technical, general and educational meetings. If no meeting occurs in your area please contact one of the volunteers listed on this page for more information or to arrange meetings.

See Directions to Board Meeting on page 4.

—Editor

Going to a flea market or need hand outs for your club? Contact the club at the PO Box or call KA7TTY at the phone number given to the left.

The club has four publications at this time.

Networking Recommendations and Forms
8 pages. Includes NAPRA's recommendations for use of 2 meters for packet and and forms for sending information to the map maker. Send a SASE (at least 4" x 9") to the club POBox for this document.

Membership Standards and Practices
10 pages. Contains all NAPRA policies, guidelines, officer responsabilities, and rules. Send a SASE (at least 4" x 9") to the club POBox for this document.

NAPRA Notebook
130 pages. Beginner's instructional, compendium of technical articles from packet newsletter, TheNET resource manual, glossary, NAPRA Bylaws. (Sent to all members once a year)

NAPRA Dedicated Link
Sent as a periodical once per quarter. Includes maps, list of servers, list of officers and appointees, contact people, membership roster and technical articles.

At this time the first edition of the Notebook is complete and is being proofed. If you are a member you should be getting your copy in a few weeks.

Excess Dedicated Link and Notebook issues are also available. Contact N0NDO, KA7TTY or the club at the POBox for more information on this.

—NAPRA

**The NAPRA Dedicated Link is published quarterly for $15 per year by
the Northwest Amateur Packet Radio Association,
620 South East Bush St Issaquah WA 98027.
POSTMASTER: Send address changes to NAPRA,
Box 70405 Bellevue WA 98007.**

Directions to Board of Directors Meeting, Lewiston Idaho

For most attendees Lewiston is in excess of three hours away. This drive is not a joke. Those who live outside of the metro areas normally have emergency gear on hand. Most hams are pretty well set too. Warning: It is quite possible to *die* lost in a winter storm or due to exposure at night in most seasons in this area. Be prepared! Bring spare batteries or emergency power, and a jacket, just in case. Also make sure you both study a map before travelling and bring a map with you. Note that it is in excess of a hundred miles between gas stations for some of this trip. If you are thinking of traveling back home after the meeting you might want to consider the under $25/night rate at the *Motel 6* in Moscow ID, 31 miles north of Lewiston and not too far out of the way for WA and MT residents. Phone 505-891-6161 for vacancy info and reservations. There may be better deals out there as well, both for price and for convenience.

Interstate 84 in Oregon or Interstate 82 in Washington

Take I 84 to I 82 North. Get off I 82 at exit 1- US 730. Take US 730 East for 26 miles to the junction with US 12. Take US 12 East bound for approximately 100 miles. Refer to *US 12 East into Lewiston.*

US 12 East into Lewiston

From East bound on US 12. Come through Clarkston. US 12 is Bridge Street in Clarkston. Continue east across the blue bridge into Lewiston. Continue east on Main Street through Lewiston until Fifth. Turn right at the light on Fifth. Come up the hill into the campus until the road comes to a T. At the T the CUB building is on the right. To park, take a left and park in the parking lot. Go back to the CUB building and enter by walking over the foot bridge. The Senate room is the first room on the left.

Interstate 90 in Western or Central Washington

Take I 90 East to exit 245, Sprague/Rt 23. Take Rt 23 South to junction with US 195 South in Steptoe Washington. Go south on US 195 until it junctions with US 95 South just across the Idaho line. Follow US 95 until it junctions with US 12 at the bottom of a steep grade just north of Lewiston. Follow US 12 west. Refer to *West Bound Into Lewiston.*

Interstate 90 in Montana

Depending on how scenic you want to be you can either take Rt 12 west from Missoula or take I 90 to US 95 south in Coeur d'Alene. Now refer to *US 95 south into Lewiston.*

To get to Rt 12 west take the US 93 south exit off of I 90. Follow US 93 south to Lolo - Rt 12. Now take Rt 12 west. It's about 210 scenic, windy and twisty, up and down, but smooth, miles from US 93 to Lewiston. Now refer to *West Bound Into Lewiston.*

Spokane

US 195 junctions with I 90 just west of Spokane. Take US 195 South to US 95 South just across the Idaho line. Follow US 95 until it junctions with route 12 at the bottom of a steep grade just north of Lewiston. Take US 12 west. Refer to *West Bound Into Lewiston.*

US 95 south into Lewiston

Follow 95 until it junctions with route 12 at the bottom of a steep grade just north of Lewiston. Follow US 12 west. Now follow US 12 west into Lewiston. Refer to *West Bound Into Lewiston.*

US 95 north into Lewiston

US 95 North merges with US 12 West. Coming into Lewiston US 12 West and US 95 North will diverge. Stay on US 12 West. Refer to *West Bound into Lewiston.*

US 12 West into Lewiston

US 12 West merges with US 95 North. US 95 North diverges just before Lewiston. Follow US 12 West into Lewiston. Refer to *West Bound Into Lewiston.*

West Bound into Lewiston

From the grade come in on US 12 West bound. Go though one traffic light and across the bridge and follow Main street around the curve to the right. Continue west on main street. Main street divides to be one way east and west. You will be shifted to the right one block. You are now west bound on D street. After a few blocks turn left at the light on Fifth (at ERB Hardware). Come up the hill into the campus until the road comes to a T. At the T the CUB building is on the right. To park, take a left and park in the parking lot. Go back to the CUB building and enter by walking over the foot bridge. The Senate room is the first room on the left.

Thanks to the Lewis and Clark ARC for hosting our Board of Directors meetings.

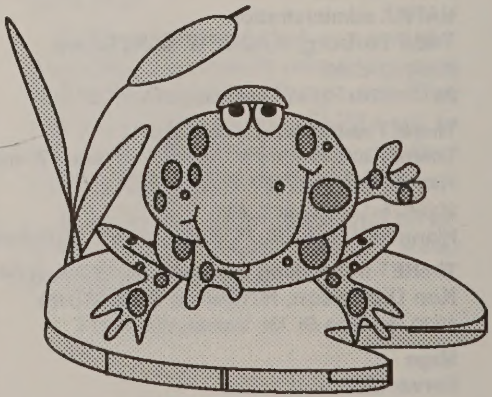
—NAPRA

TCP/IP Address Coordinators

This is our current best list of the hams who have volunteered to handle assignment of TCP/IP addresses. A coordinated TCP/IP address is necessary in order to participate with the rest of the TCP/IP community.

Please send updates of this list to KA2DEW @ N7IIJ.wa.

area		name	call	@BBS	phone #
	ID	Steven King	KD7RO	N7HPX	208-939-6252
	MT	Steven Elwood	N7GXP	WB7ETT	406-458-6269
NW	OR	Tom Kloos	WS7S	W0RLI	503-244-8277
	OR	Ron Henderson	WA7TAS	WG7J	503-758-3751
E	WA	Steven King	KD7RO	N7HPX	208-939-6252
SW	WA	Tom Kloos	WS7S	W0RLI	503-244-8277
W	WA	Dennis Goodwin	KB7DZ	KD7NM	206-871-5818
	WY	Reid Fletcher	WB7CJO	?	?
	BC	Al Mar	VE7DPM	VE7KIT	604 431-6035
	AB	Juergen Renter	VE6JR		? ?
national		Brian Kantor	WB6CYT		



Packet Voice Nets

The O.P.E.N. Sunday Evening Packet Discussion Net is now running on the Vancouver Washington 147.24 repeater. As before the net will be from 8PM to 9PM local. We encourage both experienced packet operators and beginners to check-in since the net control is rarely able to answer all of the questions which come up.

The NAPRA Voice Packet Q&A net is held on Thursday nights at 9PM on the Evergreen Intertie. Net control originates from the 145.33 Bears repeater so if you are out of the Puget Sound Area and want to check in make sure your local repeater is linked in. Volunteer Net Controls are welcome, indeed *requested*. Get on the network a few minutes early and ask/volunteer to run the net.

—NAPRA

Schedule of Local Packet Meetings

Please send this information to me as early as possible or as late as necessary. Obviously it would be better for readers of the Dedicated Link if meetings were planned well in advance or regularly scheduled. Make sure that your meetings are well publicized via packet BBSs, DxClusters and at general ham radio club meetings.

Lewis & Clark ARC, Lewiston ID

The Lewis & Clark ARC meetings every 2nd Thursday for it's general meeting and every 4th Thursday for it's packet meeting. Both meetings are at 7:30PM. Contact AA7GV, Ray @ WB7DOW or KB7IAW, Ken, @ WB7DOW or Ken at 208-743-1074 for more information.

Local Packet Group, Lynnwood WA

A group of Lynnwood and area packeteers meet most Wednesday morning at 8AM at the Elmer's Restaurant in Lynnwood. Some times the meetings are held on Tuesday morning, same time, same place. Look for announcements on N7IIJ packet BBS in Lynnwood WA. Elmer's is on 184th St SW in Lynnwood which is the third street on the right coming from the junction of 525, I405 and I5.

South Puget Sound Interest Group, Tacoma WA

This group meets at the Radio Club of Tacoma on the second Saturday of each *odd* month at 12 noon. (Jan, Mar, May, Jul, Sep, Nov). The Radio Club of Tacoma club house is on South Washington Street which is one block off of Union. Take Rt 16 into Tacoma (from the east or from the west) and then head north at the Union exit. Take a left on 19th and go one block to Washington. Take a right on Washington. Look for the ham tower on the right and park right after the club *house*. The phone # for the club house is 206-759-2040.

Boeing Employees ARS/Seattle Packet

This group meets at the BEARS shack on the second Saturday of each *even* month at 12 noon. (Feb, Apr, Jun, Aug, Oct, Dec). The BEARS shack is at building 5-02 on the east side of the runway off of Airport Road in Renton. Park near the old control tower and go into the building with all of the ham antennas. (Location may change in late 1991 - Watch local BBSs/voice nets)

Clark County ARC Packet Group, Vancouver WA

This group meets usually on the second Tuesday of each month at 7PM at the Open Bible Church on South East 10th and Ellsworth Vancouver WA. There are two churches at this intersection. This one is at the southwest corner. For info send to Jack Ellis K7SUQ @ W0RLI or telephone 206-892-7286

Oregon Packet Experimenters Network

OPEN meets on the 2nd Wednesday each month at 7PM. The meetings are held at Quality Computer Services or at the restaurant next door to Quality Computer Services. Quality Computer Services is at 52 NW 2nd Street in Gresham Oregon. For info send to Joe Johanesen, KB7DBD @ KB7DBD.

Southern Oregon Packet Radio Association.

SOPRA meets on Saturdays, once per month. The location varies in but is always in southern Oregon. Look for announcements on WB7VMS packet BBS in Medford Oregon, on KA0DFN packet BBS in Ashland Oregon, or on KI7AE packet BBS in Klamath Falls Oregon.

TCP/IP interest group, Seattle WA

An informal group meets at the OMNI restaurant on 188th St South, just west of I5 on the 3rd Wednesday each month. Dinner starts at 6PM and the meeting is at 7PM.

Send info

Send your info to KA2DEW @ N7IIJ. We can accept this info right up to press time.

—NAPRA Editor

Packet Operations at W7DK, Radio Club of Tacoma

The Radio Club of Tacoma was founded in 1916 and is considered the second oldest, continuously active radio club in the country. Our club call is W7DK. We currently have almost 400 members and in a recent poll, about one quarter of them are interested in packet radio. We operate the TAC node and the W7DK packet BBS system. We host the odd-month NAPRA meetings at our clubhouse in Tacoma. [*ed-since May the packet meetings are local general interest meetings, see* ***local meetings***] The address of the clubhouse is 1249 S. Washington and our mailing address is PO Box 11188, Tacoma, WA 98411. The phone number is (206)759-2040.

The club publishes a monthly newsletter, "*The Logger's Bark*" that contains news and information about the club as well as a short article about packet radio.

The President of the Radio Club of Tacoma is Kathleen, N0EYK. Her address is 2812 204th Ave. Ct. East, Sumner, WA 98390. Her phone is (206)862-8635.

The node stack currently contains three nodes. The user (two meter) node is TAC and operates on 144.970. TAC is a low-level node, serving most of Tacoma and about half of Pierce County. The two other nodes operate on 220 and 440 and are used for networking only. The nodes are operated by Mac, W7MSR and are located at his home at 3024 49th Ave. NE, Tacoma, WA 98422. Mac's phone is (206)952-7388.

The W7DK BBS is a full service BBS serving the needs of the Tacoma amateurs and the members of the Radio Club of Tacoma. One reaches it by connecting to TAC and then connecting to W7DK (or DKBBS). The BBS's computer system is located at the home of Roger, K7AYC and Kathleen, N0EYK. See above for the address and phone information. The primary sysop is K7AYC, but we have a series of remote sysops that run the board on a day to day basis. They are:

Bob	KG7SM,
Howard	N7RHM,
Shirley	N7QHW,
Betty	N7OVW,
Mac	W7MSR,
Cal	W7SFT and
Pat	N7CAK.

—RC of Tacoma

New NAPRA by KA2DEW

Hi and welcome to the new NAPRA. First let me introduce myself. I am Tadd Torborg, KA2DEW and one of six Directors of NAPRA. I'm a General licensed ham in Lynnwood WA. I moved to Lynnwood from Potsdam NY (20 mi south of Ontario) in early February of this year. I was formerly a founder and a director in the North East Digital Association. NEDA is fairly successful as a packet radio promotion organization in that it has successfully promoted a wide coverage general purpose packet network that is shared on an equal basis by BBSs, TCP/IPers, DxClusters, keyboard to keyboard users and experimenters. A large percentage of the ham radio community (well above 50%) is on packet on a regular basis and packet radio in NEDA's area of interest has the respect of county, state and federal emergency management organizations as well as of the repeater coordinating councils. NEDA's area of interest and the working network which it was partially responsible for promoting include New York, New Jersey, New England, southern Ontario and southern Quebec. There are some 120 networking sites participating and a five hundred mile path can be used by many users at once for any of the above mentioned purposes. Contact NEDA @ Box 563 Manchester NH 03105 if you want more on NEDA.

I'd like to talk with you about why I became involved in NAPRA and what I think NAPRA represents. But first I need to talk a little about the history of packet radio and of NAPRA.

NAPRA was founded in 1983 for the purpose of merging the efforts of many packet radio experimenters as well as for the purpose of attracting more hams into the hobby. At the time packet radio was very much an experimenters realm. In 1983 AX.25 hadn't been accepted yet as a world-wide standard. Networking was not an issue yet. Packeteers were having enough fun just getting things to work one on one. It was all right at that time that there wouldn't ever be more packeteers than, say, mobile moonbounce operators. In 1983 many packeteers were talking about how ten years in the future the entire continent would be linked together by amateur radio packet networks. These networks would allow any ham to get in touch with any other ham, in the entire continent. We'd have fax service, electronic mail, round table chats and we'd be working on digital voice networks. The sky was the limit.

In 1985 packet radio reached adolescence. In late summer of 1985 all four major US amateur radio magazines were talking about packet radio's coming of age. Heathkit, AEA, Kantronics and GLB were all making TNCs in the US. There was even competition. We were now at the point SSB was at in 1960 or so. Anybody who wanted to could go out and purchase a TNC for $300 to $400. TAPR had just announced a new, more powerful and cheaper TNC which would be introduced at $250 and which should drive prices down to $150 or so. There was a lot of talk around packet circles about the next age of packet radio, the network.

By 1988 there were several networking software packages available. Kantronics footed their own very basic system of hardware and software called KA node. W2VY and the Radio Amateur Telecommunications Society (RATS) created a software product for the TNC 2 called RATS Open Systems Environment (ROSE). Texas Packet Radio Society (TPRS) created a hardware and software product called TexNet. NORD><LINK and Software 2000 simultaneously released a software package for the TNC 2 called TheNET or NET/ROM. KA9Q created a software product for a PC and just about any TNC called NET and KISS. TNCs cost about $130 by 1988 and were available from PacComm, AEA, MFJ, Kantronics, GLB, Heathkit and a few lesser known companies. All it would take to make a network now was putting things together.

It's 1992. Our ten years are just about up. The sky is still the limit. We're not even close. What happened?

What happened is that we all let ourselves be led around by the nose. We expected our appointed leaders, i.e. NAPRA, to do all the work and then we ignored the fact that the work wasn't getting done. Our appointed leaders were having enough trouble just dragging volunteers into the ranks to maintain the required number of officers. In the mean time we've let thousands, if not tens of thousands of hams get into the packet hobby and then give it up as a bad job. Wake up guys! It's time to get some work done!

I've volunteered to contribute my time to NAPRA in the hopes of turning the tables on our past. I talked and listened to those hams that I could get in touch with to find out what NAPRA was doing wrong. The board has come up with a plan that could create a cooperative and fun environment to build our packet network. Let's do it!

Welcome to the new NAPRA!

My goals for NAPRA are to have the club promote the existence of a region wide multipurpose packet network. My definition for completion is that the network would have live connection to all state, district, and county emergency management offices, would support BBS, DxCluster, DOSgate, TCP/IP and round table conference servers and would have real time connectivity for users and servers throughout Wyoming, Montana, Idaho, Washington, Oregon and the southern tiers of Alberta and British Columbia. NAPRA will not own any network hardware. NAPRA will supply educational materials and documentation to all subscribers and members.

The first steps in making that network possible are:

1 Create educational materials that allow any ham to participate;
2 Create a club administration that will make sure members get what they pay for and that the educational materials get created and distributed;
3 Make packet radio fun.

What we're planning:

If you've reviewed the NAPRA Bylaws you'll see that the board of directors meetings are divorced from the general meetings. The general meetings are up to you and me. The first regional board of directors meeting will be held in Lewiston Idaho on October 24th at 1PM. If you are interested in club ***administration*** you might want to go to that meeting. The minutes of that meeting will be published in the next issue of the Dedicated Link. The schedule for known general packet meetings is published elsewhere in this magazine. If you have one that is not listed, and that occurs regularly you should send it to KA2DEW @ N7IIJ for inclusion in the next issue.

NAPRA Notebook: Each year NAPRA will be producing a book for all of the membership and some left over for complementary copies. The book is about 130 pages long and includes beginner info on networking, BBS usage, DxCluster usage and converse node operation, as well as advanced and techni-

Continued in next column ➟

The Oregon Packet Society (TOPS)

I am sad to announce that The Oregon Packet Society has been put into hibernation. The decision to do so was the general concensus of those at the annual meeting at SeaPac on June 13, 1992.

It was generally agreed that TOPS needs to play a somewhat different role than that which was envisioned when TOPS was started. We agreed that the organization was rather unwieldy and that a better arrangement would be one which served as a cooperative mechanism among smaller area groups such as OPEN and SOAPRA. It also appeared to be the concensus that the "critical mass" for this to happen would be one more area organization which serves Western Oregon between OPEN and SOAPRA (say, roughly the Cascades to the Pacific Ocean, Salem to Eugene or Cottage Grove).

I (KA7EHK) was acclaimed "President-in-limbo" for the temporarily dormant TOPS. I was also given the task of "stirring the pot" when the time was right to bring it back into being.

TOPS will not go completely dormant. Oregons node and bbs operators still need to meet and the name TOPS will be used as the name under which these will be orgainized at various ham gatherings. The first of these will be the "TOPS Packet Emergency Communications Forum" at the High Cascades Ham Fair at Mount Bachelor on August 8, 1992.

In the mean time, keep yours eyes open for an occasional "TOPS@ALLOR" bulletin.

—Jim Wagner KA7EHK @ WG7J
copied from packet radio

New NAPRA from page 6

cal information on constructing a packet network using TheNET. The Notebook should be ready for mailing to the members in early November. We'll have some proof copies in circulation by the time you read this.

If you have any comments or questions about anything related to the new NAPRA or technology I'd like to hear from you.

-Tadd Torborg,
KA2DEW @ N7IIJ,
206-743-6283
3417 177th PL SW
Lynnwood WA 98037

New TheNET Version

NJ7P announced release of his new version 2.10 of TheNET Plus software. There are a few new features that will be important to node builders and a few that will be important to users of the network. Elsewhere in this issue (and taking up the bulk of it) you'll find an update on the TheNET Resource Manual that was published in last Spring's *Quarterly* and in the *NEDA Annual* v3.0.

- Stay Feature

When a station connects from a node to a destination and then is disconnected by the destination the node will announce that a reconnect occurs. The disconnect won't propagate back to the user. If a user hops through several 2.10 nodes they can back up one hop at a time.

- New USER Command Response

The response to the USER command is modified. Now Level 3 circuits are shown. A Level 3 circuit is what a backbone node sees when a one user port node connects to another user port node through the network. For instance, if a station connects to CANDGA and then to CHSTR, all of the backbone nodes in between will show CANDGA <Lvl-3> CHSTR. There could be several stations at CANDGA connected through CHSTR but only one will show.

- Power Up Node Broadcast

This feature is very nice for someone working on or debugging a node. About 5 seconds after power is applied to a TheNET TNC it will do a node broadcast. This means we no longer have to wait for 30 minutes for a node broadcast to occur after a TNC is powered up. Just cycle the power.

- 23 Parameters Displayed

In version 2.08 the displayable parameter list was reduced to 16 parameters. This was to save memory. Bill has managed to reorganize the software to now show us 23 parameters.

Reported Bugs

I've heard that there are problems with HAPN 4800 baud modems when used with version 2.10 that didn't exist with version 2.08B. The solution for this is to use 2.08B in those TNCs that have 4800 baud modems installed. The rest of the TNCs may use 2.10.

Note about version 2.09

In the process of creating TheNET 2.10 from TheNET 2.08, NJ7P delivered several versions which were all called 2.09. These versions were not supposed to have gotten all over the country but somebody slipped. Among other things, the documentation included with these versions was not up to date. There are several nodes out there using 2.09. The ones I've seen work great. I can't wait to see 2.10 out there all over the place. Keep up the good work Bill! (NJ7P)

—Tadd Torborg, KA2DEW

TNC Batteries

Do you ever really look at your TNC? It probably just sits there in the corner under some magazines on top of your power supply. And it just keeps working and working and working, right? Well, usually but not always!

W5NUI recently pointed out a potential trouble spot with many TNCs. He and KA7UPD use "early" PK232s which have the RAM backup battery mounted on the top cover of the TNC, above the circuit board. What do batteries do when they get old? They leak! And that leaking battery acid drips down on the circuit board. It does a great job on a circuit board.

This brings us to the discussion point: If your TNC is more than a few years old, it would be smart to replace the backup battery. The battery cost should be no more than a few dollars. I cannot find any reference to battery replacement in my MFJ-1270/1274 manual.

If you don't replace the battery, at least look at it every year or so. Watch for corrosion, liquid, or crystal growth. By the way, the same goes for the backup batteries in your computer and other electronic equipment including HTs, computers and smoke alarms! W5NUI suggests replacing such batteries on a regular annual event (your birthday, a holiday, etc); he also suggest taping a small tag with the date of most recent battery replacement to the outside of equipment

You should plan on loosing all of the TNC parameters when you replace the battery. I keep a list of all the non-default parameters on a card near my TNC. This helps me to remember what needs to be set and to what value.

—KA7EHK

ARRL Recommends Against Automatic Packet on HF

QST de W1AW
ARRL Bulletin 58 ARLB058
From ARRL Headquarters
Newington CT June 25, 1992
To all radio amateurs

The ARRL Committee on Amateur Radio Digital Communication has reviewed the results of the January 1992 QST survey on automatic unattended HF operation of digital stations, and has submitted recommendations for ARRL Board consideration at its July 17 meeting.

A clear majority of survey respondents opposed fully automatic, unattended operation on HF. However, by a ratio of two to one, respondents endorsed semi-automatic operation, where there is a control operator present at one end of the circuit.

The Digital Committee recommendations are consistent with the survey results. The Committee is recommending that FCC rules be proposed to permit semi-automatic digital operation below 30 MHz, but not to permit fully-automatic operation. Neither type of operation is presently permitted, except under a special temporary authorization granted to ARRL that will expire next January. The recommendation includes language to protect other amateur operations from interference in the event of a malfunction of the unattended station.

The Committee also recommends that the use of unspecified digital codes on HF be allowed, with bandwidth limited to 500 Hz below 28 MHz and to 2 kHz between 28.0 and 28.3 MHz, to encourage experimentation with more spectrum efficient systems.

Finally, the Committee recommends greater efforts by the League to educate amateurs interested in HF digital operations, and to develop technical standards or guidelines for spectrum- efficient digital communications equipment.

ARRL Directors are now studying the recommendations of the Digital Committee, in preparation for their formal consideration July 17. At that time, the Board will have the opportunity either to adopt the recommendations, decline to adopt them, adopt them in modified form, or postpone consideration.

—Copied from W1AW by Tad,
KT7H @ N7DUO.WA.USA.NA.
copied from packet radio

Implications of ARRL Proposal, an editorial

After formal consideration the ARRL chose to create a Notice of Proposed Rulemaking (NPRM) to the FCC requesting that the information presented in the preceding bulletin be made into law. This is a very serious prospect. The ARRL's justification for their proposal (as I understand it) is that packet radio is utilizing an ever increasing portion of the 2m band. Only by law is this not taking place on 14Mhz and other HF bands. Currently only authorized stations are allowed to use HF for automated operation. The digital committee sees HF packet as a threat to the more traditional modes of HF operation. For the past 4 years the ARRL has recommended that the STA be continued. This past January a survey was published in QST magazine asking for opinions from the membership with regards to whether automatic operation was desirable. The response was *under*whelming.

Since almost all cross country (and indeed some in-state) packet radio communications is done via HF and since the NPRM that the ARRL filed would require us to cease automated HF forwarding by January 1993 we have a serious problem. My personal fear is that if this goes through that the replacement cross country forwarding method would be interfaces to commercial carriers (i.e. telephone or computer networks) which would reduce our usefulness to state and federal emergency peparedness agencies. Alternatives include OSCAR satellite forwarding, via continent spanning VHF networks (not practical yet) and via semi-automatic HF operation (not likely to be practical ever), by convincing the ARRL to relent, or by defeating this proposal at the FCC level.

It is my personal belief that switching to reliance on commercial networks is the worst thing that we can do. Considering that there is an in-place OSCAR satellite forwarding system (see the article elsewhere in this magazine) and all that we need to do is to utilize terrestrial networks more to get to the gateways I think that we should scale back our reliance on HF packet regardless of the ARRL/FCC decision. HF would make an excellent stand-by in case of emergencies. We can't afford to be banned from HF packet. We also can't afford to cause a war between the packet users and other HF users.

—Tadd, KA2DEW

ARRL Reconsidering? Sept 1, 1992

A week or so back, I wrote a letter to Dave Sumner K1ZZ (ARRL Exec VP), asking the ARRL to reconsider the "semi-automatic" proposal with which we have had so much fun. Today, I got a response! Either I'm not the only one who wrote, or I did a great job of persuading 'em (bet on the first).

There were two enclosures: one was the "HF Packet Status Recapped" message from K1ZZ that was posted here some time ago. The second, a "News Release," was MUCH more interesting. Here it is, verbatim:

HF Autoforwarding Update

LOS ANGELES, AUGUST 22, 1992 -- Today, the ARRL Executive Committee decided to defer consideration of a draft petition for rule making on the subject of HF automatic control for digital modes.

The Executive Committee requested that the ARRL Digital Committee meet with a representative group of up to five particpants in the ARRL's STA. The meeting is scheduled for September 26, with travel expenses to be borne by ARRL.

The Digital Committee is to report, by October 5, any additional findings resulting from this meeting that might bear on the draft petition, so that the ARRL Board can review tham before the next scheduled Executive Committee meeting on November 14.

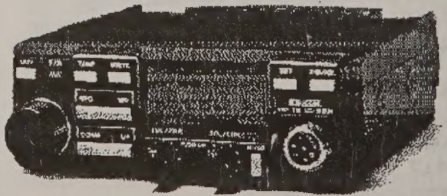
The Executive Committee also will consider filing a request for some form of STA to cover the transition period between the January 13, 1993, expiration date of the present STA and the effective date of any rules that might result from the petition.

-ARRL-

This is good news... how good depends on which five STA participants they selec for the meeting. Keep writing your section managers, folks; this ain't over with yet!

73 and Long Live the Packet Net,

—Larry Kollar, KC4WZK
KC4WZK @ WA4BRO.#ATLGA.GA.USA



Satellite/BBS Forwarding Gateways

In addition to the now endangered BBS forwarding via HF there exists another method of world-wide message transfer. KI6QE, Dave, has been promoting a system of automatic satellite forwarding for BBSs. While this system of message transfer suffers from being able to support a relatively low number of access stations (compared to the hundred or more in the US alone on HF) this method does have the advantage of being independent of sun-spots and independent of the wills of the HF community.

Here is a table generated by Dave, KI6QE that he sent to KB7CNN (in Tacoma) via Oscar 22. Dave is looking for someone with terrestrial packet network connectivity in the Northwest to join the group of existing gateways in providing an HF free BBS forwarding network via Oscar 22. Anybody who might help in this matter should contact Dave at his BBS or at the address given at the end of this article. *-ed*

There are now 33 World-Wide Satellite Gateways serving you as of 8/17/92. Please note that the operation has now completely switched to Oscar 22 and that KI6QE no longer monitors or bridges to LUSAT.

The following table set out the details of those gateways known to be active.

Call	@BBS	LOCATION	Hierarchical Addr	Service Area
0 land				
N0GIB	N0GIB	Sioux Falls	SD.USA.NA	SD,ND,WY,NE,MN,MT,UT,WI
W0SL	K0PFX	Manchester	.MO.USA.NA	KS,MO,IL,IA,TN
2 land				
WA0PTV	WA0PTV	Fredonia	#WNY.NY.USA.NA	NY,NH,RI,VT,MA,ME,VE1,2,3
3 land				
NR3U	NR3U	Selinsgrove	#NCPA.PA.USA.NA	PA,NJ,OH,MD,VA
4 land				
W7LUS	W7LUS	Ft Lauderdale	.FL.USA.NA	FL GA KY Central America
KF4WQ	KF4WQ	Lumberton	#NCLBT.NC.USA.NA	NC,SC
5 land				
W5ERO	W5ERO	Lubbock	#WTX.TX.USA.NA	TX,NM,OK,AR
KF5OJ	KF5OJ	Alexandria	.LA.USA.NA	LA AL
6 land				
KI6QE	KI6QE	Los Osos	#CENCA.CA.USA.NA	NOCA,OR,WA,ID,NV,AZ,VE6,7,8
AA6QN	AA6QN	San Diego	#SOCA.CA.USA.NA	SOCA,MEX
8 land				
K8YAH	?	Columbus	see note 1	
9 land				
NU9H	WV9O	La Porte	#NWIN.IN.USA.NA	IN,IL,MI
Canada				
VE8DX	VE8DX	Baffin Is	#BAF.CAN.NA	Baffin Island only
KL7 land				
NL7NC	KL7AA	Anchorage	#NAK.AK.USA.NA	AK
KG4TM	KG4TM	Guantanamo	.CUB.CAR.NA	Guantanamo,Caribbean area
WH6AQ	WH6AQ	Honolulu	.HI.USA.OC	US Possessions. Pac Area.
Europe				
ON4KVI	ON4KVI	Vielsalm	.BEL.EU	Western Europe
EI6EH	EI6EH	Kells	.IRE.EU	Ireland, Denmark
EA3RAC	EA3RAC	Barcelona	.EAGC.ESP.EU	Spain,Portugal,France,Italy
OH6SAT	OH6RDW	Karleby	.FIN.EU	Finland Sweden Norway
GB7LAN	GB7LAN	Lancaster	#16.GBR.EU	UK
SV8RV	SV8RV	Zakynthos	.GRC.EU	Eastern Europe,USSR
FC1EBK	?	Paris	see note 1	
Oceania				
ZL2AMD	ZL2AMD	Napier	.#40.NZL.OC	New Zealand, South Pacific
VK5ZK	VK5ZK	Adelaide	.SA.AUS.OC	SA,WA
VK8SO	VK8SO	Alice Springs		Alice Springs
FO5LQ	FO5LQ	Tahiti	.TAH.OC	French Polynesia
VK4BBS	VK4BBS	Brisbane	.QLD.AUS.OC	QLD,NSW,TAS,ACT,NT,PHL
VK3JAV	VK3JAV	Mernoo	.VIC.AUS.OC	VIC
Middle East				
4X1AS	4X1RU	Tel Aviv	.ISR.MDLE	Israel
Far East				
JA6FTL	JA6FTL	Kagoshima	.JNET6.JPN.AS	JA,DU,VS6,BV,YB
Africa				
ZS1ABM	ZS1ABM		.ZAF.AF	South Africa
South America				
LU8DYF	LU8DYF	Olivos	.OLIVOS.BA.ARG.SA	CX,CP,OA,CE,PY,YV,LU/LW

1 This station has gateway capability but is not available for traffic at present pending receipt of additional info.

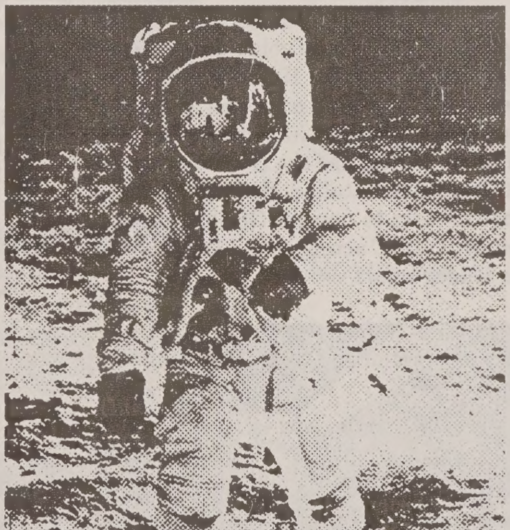
When Oscar 22 is out of service Oscar 19 will be used as a backup. KI6QE will switch to Oscar 19 immediately and all those gateways capable of 1200 baud operation should do the same and report in to KI6QE that they are available for traffic handling. Those who are not capable of 1200 baud operation should consider alternative means for passing traffic while Oscar 22 is unavailable. Generally all traffic for Europe may be passed to SV8RV, for Australia to VK5ZK and for New Zealand and the Pacific area to ZL2AMD. All US traffic can be handled by KI6QE, AA6QN and W0SL in emergency circumstances.

If you have traffic you absolutely don't know how to handle (e.g. bad or missing H addresses for US destinations) this may be sent to KI6QE for disposition.

Dave Medley KI6QE @ KI6QE.ca
1450 Bayview Heights Drive
Los Osos CA 93402
1-805-528-4956

Please advise of alterations or additions.

—KI6QE



Interfacing PacComm NB-9600/G3RUH modem to Kantronics D4-10

Due to numerous requests, I am posting modification instructions for the PacComm NB-9600 G3RUH modem to convert it to TTL input/output to drive a Kantronics D4-10 at 19.2Kbaud. Don't forget to change the radio speed jumpers in whatever TNC you are using to 19.2K after these mods are done.

I mention this only because I spent one hour trying to figure out why my mod wouldn't work, only to finally realize I never changed the TNC *speed* to 19.2K to drive the blasted modem! (what an idiot huh?) It's the simple things that getcha! :-)

5 Feb. 92

All part numbers given are for the PacComm NB-96 modem.

Receive audio in to receive data in (conversion to TTL input) mod.
Locate U10 pin 2, and circuit board trace going to U5 pin 2.

1 Disconnect output of U10 pin 2 by either lifting the lead leg on the integrated circuit or by cutting trace. Lifting the leg on the IC is the easiest way to go about it.
2 Connect TTL receive data input from the D4-10 to trace going to U5 pin 2.

Note: On Kantronics 19K2/9K6 modem, they actually put in a jumper that lets you either drive U5 pin 2 directly from a TTL source (such as the D4-10) or when the jumper is installed, the input to this stage reverts to normal G3RUH operation with U16C acting as the Rx filter for the analog input.

Transmit audio out to Transmit Date out (TTL output) modification.
Locate U18 (74HC164) pin 3 and trace going to Jumper-1 pin 1. Please note that Jumper-1 normally is jumpered from pins 2 to 3 with a header jumper.

1. Connect wire from Jumper-1 pin 1 to D4-10 transmit data input.

Note: On Kantronics modem, they do the same thing. They disconnect the output of U18A (after C34) with a header, and allow you to drive the output with U18 pin 3 or the analog output from U18A determined by the position of a header jumper. If it is desired to disable the audio output of the G3RUH modem, you can cut the trace after C34 or remove C34. I did neither and just let it run since I was no longer using the audio output, and I saw no harm in just leaving it run.

Lock Detector modification.
Locate resistor pack RS-2. It is a 100K resistor pack and its only purpose is to give 100K of resistance between pins 1 & 2 and 3 & 4. The other resistors in the pack are unused. The goal here is to change this resistance to approx. 50K, and there are a couple of ways to achieve this as listed below:

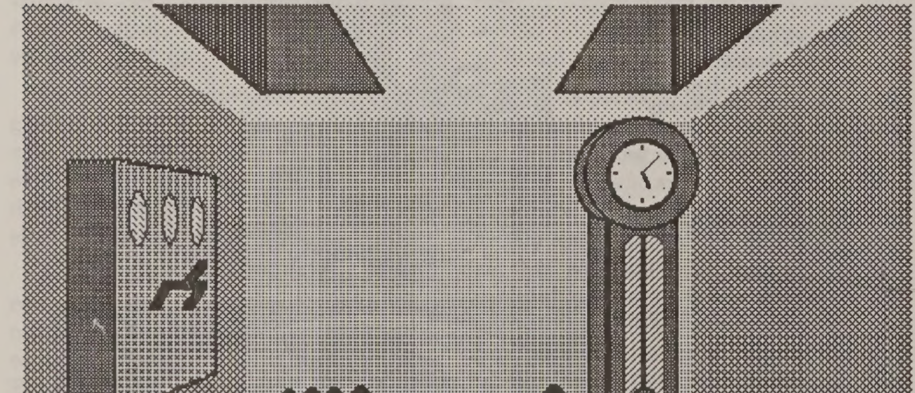
1 Cut traces to RS-2 and install two 50K resistors. One between pins 1 & 2, and another between pins 3 & 4.
2 Leave everything intact and place a 100K resistor across pins 1 & 2, and another across pins 3 & 4, this will form two parallel resistor networks with each one offering 50K to the circuit. I used this method. Not much room to work on the board for this step and soldering is in very tight quarters.
3 Use the unused portions of RS_2 to do the same thing as #2 above using shorting wires.

Note: The value of 50K for the lock detector was chosen from notes given in the PacComm NB-96 manual. I have been experimenting with these values and have achieved what appears to be better results with values different from those reported. However since I can not document *why* that is happening, and since it might be limited to my application, I will not go into details on what values I am using. I merely point this out so that if you happen to notice what appears to be poor DCD detection on what appear to be good signals, this might be a good first place to look.

Note: There were some suggestions given in the past to modify a Kantronics DVR2-2 to work with the NB-96 modem at 9600 baud. These suggestions consisted of bypassing one resistor and changing the value of another *in* the radio. The net result was to increase the audio output level of the radio to the modem, and to lower the transmit audio input level from the modem to the radio. I have found that increasing the audio output of the radio to the modem oftentimes results in *worse* performance and would recommend keeping it stock.

However, lowering the transmit drive level is required but it seems to make more sense to do this in the modem rather than in the radio. If a 47K resistor is placed in series with transmit audio output (*internal* to the modem) then it will duplicate Kantronics design, and will offer easy adjustment of transmit deviation whether you are using a DVR2-2 or a D4-10. Of course this is only necessary at 9600 baud, as when the above modifications are done, the output of the modem is TTL and not analog.

Mark Bitterlich wa3jpy @ wb4uou .nc
mgb@tecnet1.jcte.jcs.mil (internet)



What's A DataEngine?

Several of our Northwest Oregon nodes are now using DataEngines. At this moment, they include PDX7, CREST, SALEM, WLYNN. NPT has one expected to go on line soon. SNOPK has another. What are these machines?

Lets first review what is a TNC. Though perhaps not obvious, a TNC has two parts. One is a "modem" which converts digital signals to/from a form suitable for radio transmission. In the case of the 1200 baud which most of us use, the signal suitable for radio transmission is AFSK (two audio tones switched back and forth). The other part is a little harder to explain; it might be called "serial-HDLC converter". It converts between non-synchronous RS-232 serial & HDLC. Non-synchronous serial means that characters can come at any time. HDLC refers to characters which are formatted into packets and are sent in a synchronous stream for at least a whole packet. We need not go into the formatting of packets; that is another issue and lots of references explain it in some detail for those so inclined. The standard TNC has one RS-232 port (the terminal interface) and one HDLC port (the RF port).

OK, so if that is a TNC, what is a DataEngine? First, a DataEngine also has an RS232-HDLC converter. Unlike a standard TNC, instead of 1 HDLC port, there are 2. The modem part of a DataEngine uses plug-in modems which are designed for the baud rate of the port. There are locations for 2 modems on the PC board. It is possible to have each port run at a unique baud rate. That gets the node to "dual-port". A third port can be obtained by attaching a standard TNC to the serial port. The TNC is set up to operate in "KISS mode" (more about KISS in another article).

To get 4 or more ports, there are several ways one may go. Two DataEngines may be coupled together at their serial ports, just like 2 TNCs in a node. This gives (a rather expensive) 4 port node. An alternative is to connect several TNCs on a "party-line" RS-232 buss at the DataEngine's serial port. To do this, the TNCs must use "multi-drop KISS" (an EPROM-only KISS version).

Well, then, why the DataEngine when TNCs are used for radio ports, anyway? Where a DataEngine shines is interfacing between networks running at different baud rates. The node problem is more than "Do I have the right modem?" There also needs to be a lot of memory (buffer) because things will come in on the highest speed port faster than it can go out other ports. Thus, data needs to be saved until it moves out. This is more efficiently handled than in standard TNCs.

Other uses for DataEngines

A DataEngine can work in many modes. It can "look like" a standard TNC2, a KISS-mode TNC, a TheNET node, a WA8DED "host mode TNC", etc.

—KA7EHK, Jim Wagner

PKZIP201.EXE: Trojan Horse Alert!!

Warning!!! Do not use PKZIP version 2.01!!!

I have just spoken on the phone to PKWARE and they confirmed that version 2.01 of pkzip was *not* written by them. It is a *hacked* copy of version 1.93 Alpha that alleges to be a PKWARE product.

I do not know what it will do to your PC. It *might* contain a virus or similar. It is vital that you delete all copies of this software and check your PC with whatever virus checkers you have, now. Replace this BAD version of PKZIP / PKUNZIP with your old version now!

Do not blame the uploader for this problem. He probably uploaded it in good faith that it was a genuine version. There were two clues that this version was not genuine. The size of the self extracting file PKZ201.EXE was smaller than version 1.10 (who has seen new software that is smaller in size ?) and the copyright notice was 1989-1990. How can *new* software have an *old* date ?

MOTTO: Do not run software on your PC unless you are 100% sure that it is OK.

—Andrew
G8TZJ @ GB7LAN
Copied from packet radio

19.2Kbaud RS-232 for the MFJ 1270 TNC

This modification allows you to use 19.2Kbaud from the TNC's RS232 port. This mod was provided by KB9AQZ, Hanspeter. The diagram is by KB8HAV, Charlie.

1 replace U3 (LM324 or LM348) with a TL074, TL084 or MC33079P
2 Cut trace from U1 pin 2 to SW2 pin 1 (300 bps position!) see ** below .
3 Wire U1 pin 10 to SW2 pin 1 , see *** below .

When you set SW2 position 1 to on, you get now 19200 bps terminal rate, instead of 300 bps. (300 bps is no longer available!)

I placed miniature relays on the printed circuit board near SW2 and J-4 to switch the radio and terminal rates between 1200-9600 for packet radio and 9600-19200 for UO-22, otherwise you must change the switches in the back every time you change the mode of operation!

```
                                    original trace
                                         **
                          ////////////( cut here )////////////
                         /                                 |
                        /                    8         pin 2  1
                       x------------------   |-------------|--|
sw2 >  | * * * * * * * * |        NEW    |   |     U1        *|
       | 8 7 6 5 4 3 2 1 |        WIRE   |   |-.--------------|
        -----------------         ***    |   9 10             16
         * * * * * * * *                 ------x
     pcb 9  11  13  15 16 pcb
          10  12  14
```

pcb = pc board connections (pin 9 to 16 are shown for reference only)

sw2 > = Has the numbered switch positions for setting the baud rate. These numbers can be seen from the rear of the tnc .

x-----------x = New wire that is added from sw2 pin1 to U1 pin 10 . This is the only wire added .

//////////// = Original trace that must be cut . It ran from sw2 pin1 to U1 pin 2 . This is the only trace that must be cut .

U1 is a MC14040b in my 1270 .

The only mod to U3 is to replace it. (no trace to cut here)

The TL084CN was only $1.50 here in Kentucky.

NOTE : This drawing is not to scale. You will find sw2 and u1 on back edge of the pc board next to 12 volt input jack. All pin positions are shown from the *top view* of the pc board and the tnc LED's positioned at your chest. All cuts and connections are made on the bottom side of pc board, keep this in mind when you are identifying the needed pins.

I would like to thank Hanspeter HB9AQZ for this mod. It has make a hugh difference in the down load bps from UO-22 at my station.

—Charlie, KB8HAV, Louisville, KY

O.P.E.N. meeting minutes Sept. 9, 1992

The regular meeting of O.P.E.N. was held at 52 NW 1st. St. in Gresham and was called to order at 7:03 PM PDT by President Joe, KB7DBD.

Minutes

The Minutes of the August meeting were read by President KB7DBD and approved as read.

Treasurer's report

K7IU reported a balance of $290.90 in savings at U. S. National Bank and $90.00 in cash on hand for a total of $380.90.

Old Business

KA7AGH asked if there has been any progress on purchasing crystals as authorized in the July meeting. The president reported efforts are still being made to 'ping' nodes to get a better idea of where links are still needed and this in turn will provide better information as to which frequencies we need to buy crystals for.

An Astron 20 watt power supply, donated by W7AXJ has been repaired by KB7KBT and is now ready to be put to work. ***Thanks, Ernie and Garrey***!!!

KB7DBD lead a discussion of our need to get a better handle on alternate routes in the event W0RLI or some other very critical node is down. KA7AGH stated WA7SJN could pick up the load if the downed link is Hank. Jim also stated this problem will get smaller when we can get our forwarding off 2 meters.

Jim, KA7EHK answered the question of what had happened to the link to BEND. There was a lightning strike in early August that put the link off the air.

New Business

KA7AGH is in need of borrowing a 220 yagi to see if 220 can be reliably worked between his house and AA7RF in Woodland. KB7DBD has been using a borrowed yagi and it is available for Jim to use.

KA7EHK distributed a Node Map of the Northern part of Oregon. He reports there are many 'hidden' transmitters. (It is a zoo, he says.) Things are beginning to shape up in the Corvallis area with some developments that should improve the situation. A major concern is the effect this will have on HEBO. There will be no effect until completion of a link between Corvallis and LLOC. The question is, *"What is HEBO going to do."*

1 If HEBO doesn't change frequency EUGENE will suffer because HEBO is their link to Florence. There seems to be a very strong commitment on the part of W7EXH to set up a link between MTHOOD and PRAIRIE. Jim, KA7EHK reports he has seen the link work and there are literally no repeat requests. This in turn will make a good path from MTHOOD to KING.

2 Another scenario is for HEBO to use the same 220 frequency that the Mid Valley folks are going to be using. LYONS will provide a second link between SALEM and EUGENE. Most of the members of this system favor going to 440 and also stepping up to 9600 bauds.

HEBO is a vital link for the Emergency Operations Centers in several of the North Coast counties. Several of these units are crystal controlled and changes need to be considered with these things in mind.

KA7EHK asked if any of the folks in this group (OPEN) have any ideas of a solution to strengthen the system from Portland area to the South.

SALEM is making *two* significant changes this month. SALEM is adding a dedicated link between the BBS and the hilltop. They are also changing the DataEngine software to J-NOS40. KA7EHK assured the Node Ops the SALEM group will notify the *network* before the actual changes are put into effect.

KA7EHK reported there have been questions on the Sunday Evening Packet Sessions (Clark County ARC repeater, 147.24) indicating a need to try to have a one day session for operator training and to provide a forum for the users, new and old alike, to exchange ideas and learn how to get more out of and through the system. (Jim thinks OPEN is the most likely group to organize this function.) Garrey, KB7KBT will handle the task of learning if this can be held at Mount Hood CC. We need to know if there will be a charge and if there are any other requirements we need to meet to satisfy the College.

KB7DRX, Terry asked if there were ideas of what would be desirable to improve the path through the Gorge to the East. KA7EHK reported K7YLO is working on a link into YAKIMA along with a link to BURNS. If the YAKIMA link works out is likely we will be asked to move the frequency of the MTHOOD node to get it off the Eastern Washington frequency.

Tom, N7CPA moved we adjourn. Motion carried. Meeting adjourned at 9:15 PM PDT.

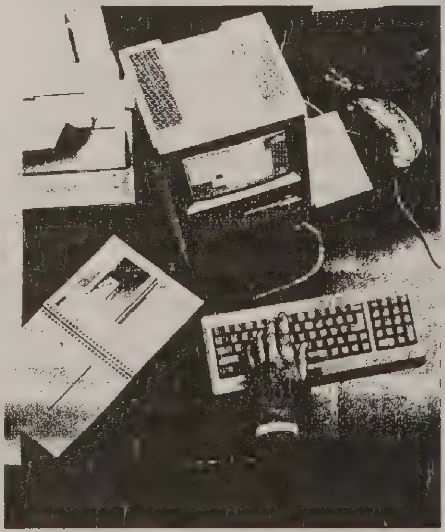
Next Meeting

October 14th unless otherwise announced on Packet. The time and location will be 6:30 PM at 52 NW 1st. St. in Gresham.

Present for the meeting:

Joe	KB7DBD
Mel	N7LYY
Doug	N7KEJ
Terry	KB7DRX
Duane	N7QDN
Ernie	W7AXJ
Garrett	N7THJ
Jim	KA7AGH
Skip	KA7RSZ
Dave	WA7KAI
Bob	K7EPE
Elmer	W7YMC
Garrey	KB7KBT
Kevin	KB7NTL
Tom	N7CPA
Bob	W7ZYK
Jack	K7SUQ
Oran	N7ASX
Jim	KA7EHK
Linda	KA7GVQ
Ray	K7IU
Rick	N7VYN
Randy	KE7AF
Dave	N7OAH
Steve	N7MFT

—K7IU, Ray
Sec/Treas. OPEN



JNOS BBS

Most NOS implementations include a BBS function which looks a lot like a W0RLI or AA4RE style BBS. Many packeteers and most BBS ops have have a rather negative view of BBSs based on KA9Q's TCP/IP implementation (which all NOS versions are). That image should be undergoing a major change with the BBS addition by WG7J. I have been watching its development in Corvallis where it is the BBS accessible from the CRV node.

First, perhaps, we might ask, "why, in heaven's sake, *another* BBS program?" The reason is that BBS programs which offer TCP/IP connectivity are few. MSYS, which attempts to do this, has flaws when viewed from a TCP/IPer perspective. WG7J has also added enhancements which will make his program stand on it's own in the BBS arena.

Johan (WG7J)'s version of TCP/IP operates for a long period of time without human intervention for restarts. Periodic crashes due to memory usage bugs has been known to be standard fair for MSYS and NOS in the past. Not so with WG7J's version. WG7J's NOS behaves as a node if desired (somewhat like MSYS). Johan has made the node interface more *normal* to users and improved the BBS so that it provides standard forwarding. The result is a program which occupies much less memory space than MSYS, which implements TCP/IP properly, and is a BBS with some differences.

The differences will be quite noticable to anyone who uses any of the *standard* packet BBS programs. The most obvious is the *area* concept which is standard with land-line BBS operations including Compuserve. This saves you from going through all of those for-sale bulletins when all you want to see is ARRL or RACES. The BBS places bulletins into these areas (which are specified by the SYSOP). The BBS will tell you what the predefined areas are if you send it an ***a*** or ***areas***. Doing this on CRVBBS gives me:

```
a
Current message area is: ka7ehk

Available areas are:
ka7ehk              Your private mail area
allor       -       All of Oregon stuff
allusa      -       ALLUSA bulletins
allusw      -       ALLUS-WEST bulletins
amsat       -       AMSAT bulletins
ares        -       A.R.E.S. bulletins
arrl        -       ARRL bulletins
dx          -       DX bulletins
fcc         -       F.C.C. related issues
help        -       help about this system
humor       -       humorous stuff (whatever that means
:-) )
ntslocal    -       Corvallis area NTS traffic to be
delivered
osuarc      -       Oregon State University ARC stuff
pnw         -       Pacific North West stuff
races       -       R.A.C.E.S. bulletins
sale        -       'for sale' bulletins
tcpip       -       TCP/IP related stuff
wanted      -       'wanted' bulletins

>
```

Note that you have an area all of your own; each time you log on, you start in your personal area. To call up any other area, just send, for example "a allusa"; in this case, the response is:

```
a allusa
allusa: 131 messages  -  0 new.
>
```

In the event an area is empty, there is only the ">" response. An "L", gives you all of the new messages in that area. The bbs keeps track of the "new" messages for each user in each area. Any (new or old) can be read with R #. You can S, SP, SB, etc to your heart's content in any area. "LM" (list mine) and "RM" (read mine) work only in your personal area. One of the quirks of this bbs is that the message numbers change as old ones are deleted; the oldest message in a given area is *always* # 1! Sysops might like the fact that version 1.01 now includes automatic message and old bid expiry.

If you want more information about this version of KA9Q-NOS, contact WG7J@ WG7J.OR.USA.NOAM. It is also available on Internet and several land-line BBS's. I can recommend it quite highly. The node "shell" is also well thought out, and, when used, is very straight forward. Sorry, but this is PC/equiv only!

—Jim Wagner, KA7EHK
copy from the Operator via packet radio

Callsign server at W0RLI

W0RLI has a nifty new feature for his BBS. He has an on-line callbook server. You can get data from it in two ways. One is to send a message to the BBS from your local BBS. The message format is either

```
SP HB @ WORLI
wb1dsw
n0an
```

or

```
SP SAM @ WORLI
wb1dsw
n0an
```

Each desired call must appear on a separate line. There should not be anything else in the message. The server will determine from the header where to return the answer. The response includes name and address.

The second access method is to connect to the NODE WLINN (not the bbs!) The issue the command: QTH call1 call2 call3

Some other commands exist, but they operate quite slowly:

QTH NAME first last	example: QTH NAME JOE JONES
QTH CITY city state	example: QTH CITY PODUNK MT
QTH ZIP zip	example: QTH ZIP 97389

ZIP allows wildcards.

For example: QTH ZIP 97* will provide a list of all hams in Oregon. Be careful of these last ones as they could result in large volumes of data!

—KA7EHK, JIM WAGNER
copied from Operator v3#22 Jan 1 1992

Notes on FT736 & 9600 Baud Operation

by James Miller G3RUH

These notes tell you where to get FM RX audio direct from the discriminator, and where to modulate the FM TX varactor directly. These mods are non-destructive and take no more than a few minutes. The signal bypass the "DATA SOCKET" for high grade FM operations.

The RX mod is suitable for:

- UOSAT-D 9600 baud downlink and terrestrial links
- 1200 baud AFSK/FM Standard Packet - BUT IT'S UNSQUELCHED.

The TX mod is suitable for:

- FO-20/PACSAT uplink (1200 bps Manchester FM)
- UOSAT-D 9600 baud uplink direct FSK and terrestrial links
- 1200 baud AFSK/FM Standard Packet.

FT736 - FM Direct from Discriminator

Detected FM direct from the receiver discriminator is available from the RX UNIT at the junction of R91 and C83. These components are shown in the top right-hand corner of the schematic.

Proceed thus:

1 Disconnect FT736 from the mains electricity. (Safety).
2 Remove top cover only.
3 RX Unit is the vertical module on the left.
4 Locate R91 which is about 25mm from the top, 50mm from the radio rear. The resistor is "on-end", and near a couple of glass diodes.
5 Scrape any paint off R91's free end and wet with solder.
6 Your RXaudio lead should be a fine screened cable; connect the inner to R91, and the outer braid to a ground point (e.g. can of TO09)
7 Route the cable out though any convenient aperture in the case.
8 The discriminator sensitivity (FM Normal) as about 6 kHz/volt.

Important note on 9600 Baud Use

Some FT736 receivers are fitted with an LFH12-S IF filter for FM. (CF01 at the top front of the RX Unit). This is a 12 kHz bandwidth filter which is a little too narrow for 9600 bps FSK operation. It is recommended you change this to 15 kHz or better still for UOSAT-D use, 20 kHz bandwidth which will allow more tolerance for doppler shift, and give a far better "eye". Suitable filters are: LFH-15S or CFW455E, and LFH-20S or CFW455D. The first of these is a Yaesu spare part, and is often already fitted.

FT736 Direct Varactor FM Modulation

Refer to the circuit diagram; inject your TXaudio at the junction of R32/C29 on the TX Unit. The signal level at this point should be 800 mV peak-peak, and will give +/- 3 kHz deviation. ***Do not exceed this level.***

Set Mic Gain to min.

Modulating the FM transmitter this way you get an LF response down to 18 Hz (at which point the associated synthesizer PLL begins to track the modulation), and an HF response which is flat to some 10 kHz.

Proceed thus:

1 Disconnect FT736 from the mains electricity. (Safety).
2 Remove top cover only.
3 TX Unit is the module flat on the left (not the one tucked down the side vertically).
4 R32 is just to the left of the rectangular shielded enclosure. The resistor is "on end". Scrape any paint off the free leg.
5 Your TXaudio lead should be a fine screened cable; connect the inner to R32, and the outer braid to the adjacent enclosure.
6 Route the cable out though any convenient aperture in the case.
7a 1200 BAUD PSK MODEM: TXaudio of 800 mV pk-pk can be obtained by adjusting the components C9= 1uf, R3=47k, R5=infinity (i.e. remove). C10 stays at 10nf (0.01uf).
7b 9600 BAUD FSK MODEM: Adjust TXaudio level with VR1

Notes compiled by G3RUH @ GB7SPV 1990 Mar 16

Modification to the Yaesu FT-736R by G4WFQ 12/1/91.

This modification was given to me by Zeno Wahl, G0NJC/VE3LMX (U.O.S)

The modification lowers the frequency response to 3 HZ, and gives a far better "eye" by reducing L.F flutter.

Proceed thus.

1 Locate "TXPLL UNIT" (Vertical board on Tx unit).
2 Locate R01 (Scrape any paint off. Wet component with FINE solder.
3 Solder 560ohm Resistor on R01 (end nearest to pll board) Solder 47microfarad tantalum in series with 560R. Take (-) negative leg of Cap to Gnd, eg case of Txpll unit.

—G3RUH & G4WFQ

KISS: What Is It and How Do I Get Out of It?

Over the last several years there have been a number of BBS messages along this line: *I put my TNC into KISS mode and can't get it out. What do I do?*

KISS is an acronym for "Keep It Simple Stupid!" It is the name of a protocol designed for TNC that allows the TNC to be totally controlled by a computer (like a PC). It is used for TCP/IP as well as for some BBS programs. KISS messages always start with the character $C0 (not a standard ASCII character) and end with a $C0. The second character is a *command byte* which indicates the kind of message. Some messages set things like TXDelay. Others indicate that data (i.e., a packet frame) is to be carried. A TNC operating this way relies on the host computer to construct the packet (in all of its gory details). The TNC simply converts the packet from asynchronous serial to synchronous.

It is not possible to generate KISS messages from a 7 bit terminal. There are a number of programs which interface with TNCs using KISS including TCP/IP, NOS, MSYS and G8BPQ.

Most TNC2 clones now come with KISS resident in the EPROM. For MFJ1270/1274 TNCs, the command is KISS ON. The second step is a TNC reset. This is done either with a *RESET* command or by turning off, then back on. The TNC comes back on in KISS mode. It appears to come up at the same (terminal) baud rate that it was at prior to the reset. Note that once KISS is on, it no longer recognizes your normal computer and *KISS OFF* has no effect!

I do know of three ways to get your TNC back into normal operation:

- use a KISS computer interface; This involves running a computer program on your personal computer that talks KISS and asking your computer to take the TNC out of KISS mode.

Continued on next page ->

Quality Values verses TheNET Node Propagation Distance

NAPRA specifies a node propagation distance of 7 hops. That means that 7 TNCs away from a node the node will be visible but 8 TNCs away it will not. Assuming that each TNC to TNC over the radio hop is a point to point link and each TNC to TNC local hop is over a HexiPus™ each node site will be visible three node sites away. The reason for this number is :

- If the network is built well and if networking is at all popular the number of nodes that will be three node sites away starts approaching 100. Four node sites away will reach a number correspondingly higher. Keeping node lists short, is for TheNET a good idea for many reasons.
- By reducing the number of sites each connect command can traverse we improve the reliability of each connection.
- Because the quality value of a node is reduced drastically with each hop if a link goes down the node's which are no longer available disappear fairly quickly. This also goes for nodes which are placed on the air temporarily.

NAPRA makes the recommendation of 203 for a broadcast quality for both RS-232 and radio links for all TheNET nodes and 161 for all single CPU nodes (like G8BPQ, MSYS, NOS).

The value used for Time-To-Live is used to limit the number of hops that a transmission may travel across the network. This is useful for reducing the effect of bad routing which occurs when a link fails. If Time-To-Live is set to a value less than the number of hops that a node may propagate (set by the quality values) then users may attempt to connect to nodes that can not be gotten to. This causes immense frustration. Please do not allow nodes which are unreliably connectable to show on the lists of nodes that are in your control. By keeping your node lists down to what is usable you do a great service for packet radio. Users are our future.

Use this program to determine how far your nodes will propagate. If Time-To-Live is set too low, either set your quality values lower, set Time-To-Live higher, or re-think how things are working.

—KA2DEW

```
10      msgqual = 256
20      hopnum = 0
30      minqual = 50
40      PRINT ""
50      PRINT "at start node"
100     REM start of loop
110     PRINT "message quality at hop #"; hopnum; " = "; msgqual
120     INPUT "Enter quality for this hop ->", hopqual
130     msgqual = msgqual * (hopqual / 256)
140     msgqual = INT(.5 + msgqual)
150     hopnum = hopnum + 1
160     IF msgqual < 50 THEN 2000
170     GOTO 100
2000    REM end sequence
2010    PRINT "message quality is below min-qual."
3000    END
```

Battery from previous page

• Allow the battery-backed RAM to discharge. This can be done by disconnecting the battery with the TNC off. On MFJ TNCs, it may be easiest to slide a piece of paper between the battery and the battery contact then letting it sit for 10 minutes.

• On a PC Compatible, hold down the ALT key and type 192 let up on the ALT key. Press the ALT key, type 255, let up on the ALT key. In other words: ALT-192, ALT-255. **You must use the numeric keypad numbers on an IBM compatible**. This is an old trick. It's sending a two byte character sequence equivalent to decimal 192 and 255.

Thanks to Stu, WD4ECK for the ALT key sequence tip. He heard it from a friend on the AMSAT net that meets on 80 meters every Tuesday night...

—Jim Wagner - KA7EHK @ WG7J

Eastern WA Dx Spotting

There are two new DX spotting nodes in Eastern Washington. One is EWDXC:NY7T-9 off RLD:WB7TLK-8 (Richland, WA). This is a TheNet node which identifies itself as: Eastern Washington DX Club PacketCluster. It is not obvious what call the actual DX PacketCluster uses. RLD is still disconnected from the bacKbone but can be reached on 2M from BEND. The second is WS7I which is off the SPOKN:WB7NNF-8 node (Spokane). The linking goes like this: on the SPOKN LAN frequency is dual-port NET/ROM node IEVHF:WB7NNF-9. The other port of this node (frequency unknown) is EWARG:WB7AVD-7. WS7I is off EWARG; a "U"ser list will show you how many DC spotting users there are.

—Jim, KA7EHK

Ramsey FX-146 2m rig

This article is intended for anyone planning to build or having already built, the Ramsey FX-146 radio kit.

The front end of the radio is very wide, from 130-160 MHz, which for some seems to be a blessing, but personally, I have had more than my share of intermod products and image frequencies wiping out the data/information/ QSO I want to pursue, and so, finally called Ramsey with a question about the radio's bandpass filter. As it turns out, there is a filter circuit that is available from them (it was free at the time, so ask them about it) that will replace the existing front end filter circuits. You remove several parts and mount the small board in place of those parts. The change was immediate and *immense*! I no longer pick up the local police, fire, paging systems and general taxi-cab calls found within the business band (bleeding over into my *ham* radio!) My packet system is working 1000% better, and I can now *hear* stations that are a total of five miles away (Hi Hi!) Not to mention stations I didn't *know* existed, simply because the interference wiped them out. Anyway, this mod works *great*, and if you have one of these rigs you owe it to yourself to call them and request the mod, even if you don't need it in your area, you *might* someday. By the way, I live in Colorado Springs, not really known as a high density radio area, but, apparently it *is*. I hope this helps someone else.

—Rick N0NJY @ W0LKD

ROSE X.25 Packet Switch Development

Contrary to pronouncements to the contrary, Tom Moulton, W2VY, continues to actively develop the ROSE X.25 Packet Switch. Users of the RATS ROSE Network (in New Jersey) can attest to this — Tom uses our network to test new code!

ROSE Switch version history, and future plans, is included as a "read.me" file in the ROSE distribution ZIP file. That file, taken from ROSE X.25 Packet Switch Version 2.9 (release date 920501) follows.

28 June 1990

Switch was not setting a couple of Reserved bits in the numeric digi field, this was causing one vendor's code to crash. Had a bug where the T3 (Check) timer was not being started if the user was running AX25L2V2 OFF (if Ver 1).

Note that L2T2 and L3T2 should be set to 4 if users are using 256 byte frames. If they are using 128 byte frames then the defaults should be OK.

The switch will now allow calls on LCN's that are out of range. What this means is now when connecting to an unconfigured switch the MaxVC 5 is no longer needed. It will not allow more than 5 connections until it is configured and the link is brought down. (Most easily done with the power switch or by using BOOTER.LOD)

******* Major Bug Fixed ********

There was a bug from since before 060289 where when Switch A was connecting to Switch B and Switch B did not know about Switch A when the Level 3 was Restarted it might crash based on what was in high RAM. This would also vary from machine model (if TNC2 vs PK88 or DR-200, etc) which explains some other oddities that have been seen.

Independence Day 1990

Fixed a bug that would add garbage entries in the users display if a user tried to connect through two (or more) digi's using the switch as the first. (Did not specify a network address) I don't think this would really cause any problems but it might have, since the USER Linked to had a pointer that was pointing off into memory somewhere - but i don't think it would ever modify anything out there...

13 July 1990

Have invalid connect requests (except to self) be ignored instead of returning a DM (if *** BUSY). Allow for L in X.121 Address to be translated to the digit 1. (Should have been this all along, I did have a typing class once!)

Repaired the PK87/88 overlay. Renamed it to be PK88.OVR.

All references to PK87 should be changed to PK88!

10/26/90

The 900713 version has been performing very well. This version only has three changes.

1) Password protection to LOADER

2) The RS232 port now supports the diode matrix used for Net/ROM as well as standard RS-232.

3) Clean up for CONFIG and LOADER and fixed a bug in USERS. Config and Loader would not properly handle the case of someone attempting to connect to them while someone else was using them. And Users would not allow more than one connection at a time (fixed).

Added two new applications: MHEARD.LOD gives a shorter heard list when it is loaded, users still connect to HEARD. INFOSP.LOD has Spanish messages on the disconnects.

If using an RS-232 LAN you need to cut the jumper between 10 and 20!

**** SEE MANUAL.UPD for changes to the manual!!!!

11/11/90

The EPROM defaults to having No Password, can be changed via CONFIG. Added some space after the COPYRIGHT NOTICE for local LAN info. 60 Bytes (My copyright message is "ROSE X.25 Packet Switch Version xxxxxx by Thomas A. Moulton, W2VY")

To make the text get sent to users you will need to modify two pointers, these are l2wdta and l2eob, see ROSEZSW.LST. Note that l2eob points to the Last char of the string and l2wdta points to the next location. (if l2wdta = l2eob+1, Always!)

The password can be burned in EPROM as well, location defpwd. The first byte to the number of characters the reply needs to be, the second byte is the length of the key (40 max) and the next 40 bytes are the key.

Both of these will be modifiable via CONFIGUR.EXE in the near future, and I will send a message to ALL@ROSE when it is ready for download.

8/10/91

One major change - All Messages out of the switch that BBS's or other programs might look at now start with "Call." Here is the list:

Call Being setup Call Completed to

*** Call Clearing ***

*** Call Reset ***

I did some space conservation. Also wrote an application (aka .LOD) that will print out the contents of the LINK (Level 2) data structures. This is really only useful to help debug the NO PEER problems. Do the following: Upload UDUMP.LOD (You may have to BOOT the switch first, it is BIG!) then when you have some NO PEER's connect to UDUMP and hit return (With capture file open) - It will print a lot of information. Send me the file either by mail, packet or MODEM (The latter is preferred)

30 Aug 1991

Some space conservation, changed the memory usage limits to send RNR's a little sooner (So there is more memory to work in) to help the RR/RNR loops. Also made a change upon when the timers are reset, to help avoid the RR/RNR loops. This is an attempt to avoid the problems.

Also made a change to application connect logic to allow a single application to accept connects for many destinations. This is to be able to start working on CONFERENCE Bridge and Broadcast Applications.

10 Sep 91

Added some debug code to detect where the NO PEER vc's were cleared from within the code.

25 Nov 91

Added better flow control for VC's and L2 Links. We hope that this will reduce/eliminate the NO PEER problem. Will also reduce the amount of data taken by a single VC.

30 Mar 92

Moved, Son was born, bought new computer,... Updated Applications to not respond to CR and to send all data when you first connect to them (Like INFO). To keep various people happy am calling this version Version #2.8, many things will still be based upon the date.

The file names will be changing to have the version number instead of date!

The idea is to be able to say that we will have PID (aka TCP/IP) support in version 3.0

Also now support updating TXDelay from CONFIG!

:020E000000 Read the value and :010E0100ttcc TT is TXDelay value (HEX 10ths of milliseconds), CC is checksum

28D8 is default if you increase TT by 1 decrease CC by 1 (28h = 40 is 400 MS)

Also removed MHEARD.LOD and modified SHEARD.LOD to only allow one Heard List per connection. (SingleHEARD).

1 May 1992 Version 2.9

Added new parameter to clear packets, the switch can now indicate where a clear originated. This means if you are told 0D00 you will also know Which Switch has the problem! The required many updated to the handling of call setup and clearing, so the information could be relayed back. It will only be displayed to the user when INFO.LOD is loaded, and will not be displayed when in Reliable mode. Also pass Q, D and M bits correctly. And found a bug is the passing of Call User Data.

Future Releases:

Version 3.0

Full Support for Protocol ID's (PIDs) Other than F0 (User Data) — This means that TCP/IP and any other Protocol will be transported by ROSE Switches. Alpha testing will be in June and it should be released in July 1992.

Version 3.1

Support for Packet Fragmentation. In earlier versions all links ran with a packet size of 256 and if a packet was ever broken up (on an HF link for example - 32 Bytes) it would not be re-assembled. This version will support this re- assembly.

Version 3.2

Support for reception of large frames (2K). They will be fragmented and sent through the network and re-sent as a single frame upon exiting the network.

These changes should take us to the end of the year.

Other items that will be worked upon in between these include:

* Configuration of L2 and L3 parameters on a Link by Link basis * DOS Device Driver * Data Engine * Support for Tiny-2 Plus and Expanded Memory Board

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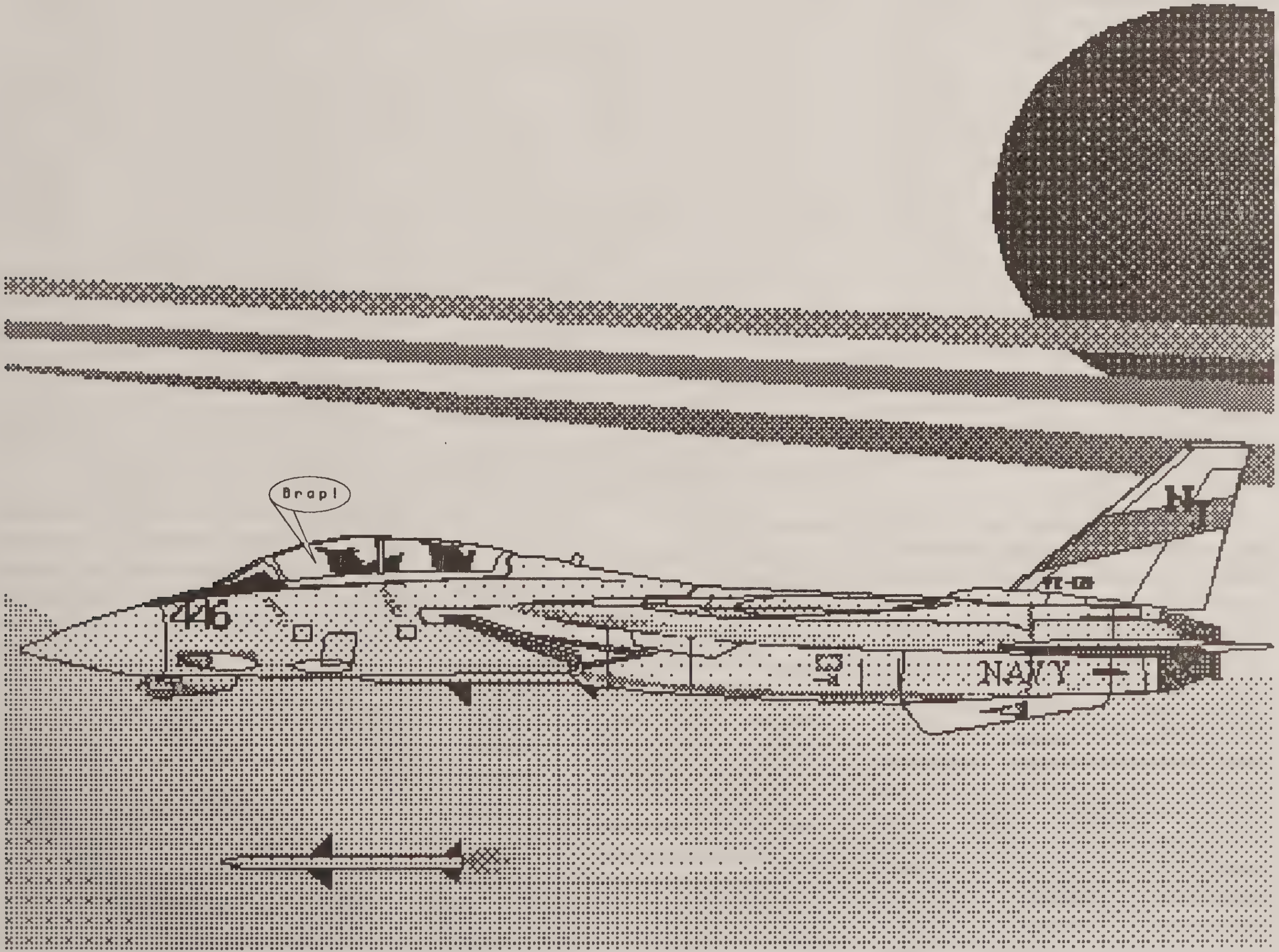
—Andy Funk KB7UV

This article copied from NEDA Quarterly #3.2 July 1992
NEDA, Box 563 Manchester NH 03105



2400 Baud Applications: Effective Throughput Analysis

When I first heard about the availability of 2400 baud modems for packet, I was very interested. Twice the speed, although not terrific, was still better and the 9600 baud alternative required special radio characteristics and there was little knowledge about making 9600 baud work thru the available radios. The "thru the mic" interface that 2400 baud allows was at least a partial solution.

Then over the next couple of days and conversations with several individuals, reality started to set in. It was not twice as fast. I realized that at 2400 baud an acknowledgment packet takes virtually the same time as at 1200 because of the radio key up times. Add to that the key-up time when starting to send the next burst of data packets and other bits of dead time and very quickly the increase in speed gets dissipated. Under optimum conditions with short Tx delays and large frame sizes, a 50%+ increase in speed could be achieved, but more typically only a 30% increase in speed might be experienced. That is assuming there is no other activity on the channel. If there is some other activity, or a simplex hop is used, the send\ack cycle gets lengthened and any speed benefits gets virtually lost. One of the few benefits that helps is that with shorter bursts the probably of getting hit by a hidden transmitter is reduced. All in all it did not appear that the cost of the 2400 baud modems was worth the performance increase. Although I did experiment, I like many other of the system operators had pretty much written off 2400 baud.

Over the past couple of months, I detected a flaw in my logic. The flaw is that I had assumed that as channel congestion increased, the speed advantage would be further diluted. This is not entirely true however.

I find that prevailing operation conditions differ now from the past when I had made come to my original conclusion about 2400 baud. With many sites now being backboned to servers and simplex hops much less common, while at the same time other users on the channel at the same time are more common. Typically what may be experienced when working a server directly or a server thru a node is burst of data separated by significant pauses. This is due to activity causing delays while the server or node waits for the channel to clear to send more data. Sometimes it is because of several users of the same port and air time gets divided between the users. A typical user may see a 2 second burst of data every 15 seconds or so. This can put the average throughput down around 200 baud. Under these circumstances a 1200 baud HTS free link has no trouble supplying data to a user port.

In my logic, I only made comparisons between what 1200 baud can do on a clear channel compared to 2400 under the same. I did not consider busy channels like the above. When the channel is busy the send/ACK turnaround times become insignificant compared to the time waiting for other data to pass. As mentioned above, at 1200 baud a 2 second burst of data with a 10 second pause will result in a average throughput down around 200 baud. At 2400 baud with the same TNC parameters, the user may see a 1 second (same amount of data sent in half the time) burst with still 10 second pause (since other users may still be using 1200 baud). This results in only a increase to an average of 218 baud from 200 baud. Again a minimal increase and my logic appears to hold.

In my earlier logic, I did look at the effects of increasing frame size and number of frames sent in one burst and found that the send/ACK turn around time still significantly cut into speed improvements at 2400 baud. Now lets assume that on our busy channel, we configure the station running 2400 baud to send twice as much data in one burst (i.e. maintaining the same length burst). Then at 2400 baud 2 seconds of data are received with a 10 second pause which yields an average of 400 baud. There it is 400 baud instead of 200 baud! It is truly twice the throughput that a station running 1200 baud would see. The reason we now experience this increase is that the send/ACK turnaround time is no longer a factor.

Now lets assume we set up a dual 1200/2400 baud userport. Users then would be able to upgrade their TNCs and see this performance gain. It also should be noted that there has not been significant advancement in basic TNC2 hardware for a long time and that many of the users may be willing to make the $60 to $70 upgrade since it has been years since they purchased their TNC. If we further assume that a significant number of the users make an upgrade to 2400 baud, that 2 seconds of data with a 10 second pause may change to a 2 seconds of data with a 7 second pause because another station using the channel that you would be waiting for, could now be running 2400 baud reducing the delay time between data bursts. This further increases the average throughput to 533 baud which is more than 2.5 times as fast as things were when everyone was on 1200 baud. Who would have guessed that a 2:1 increase in data rate in fact increase average throughput greater then 2:1. I am not pulling your leg. Keep in mind that I am talking about average throughputs that are down around one quarter of the actual data rate because of congestion.

Through the above logic, I have concluded that it is worth investing in 2400 baud userports where the prevailing conditions are as I described. Whenever experienced average throughput is one third or less of the maximum obtainable average throughput, 2400 baud properly configured will provide a 2:1 increase. If enough stations operate at 2400 baud greater then 2:1 can be experienced. A special 2400 baud only LAN would provide even better performance to those stations that upgrade. However it should be noted that operation on a uncongested channel at 1200 baud will perform nearly as good as 2400 baud under the same conditions. There are some other issues that should also be considered such as what about all those TNCs with open squelch DCD capability that may be on the channel you are trying to operate 2400 baud? It is true they will not detect the 2400 baud. I submit it is not as big a problem as you may think. The additional collisions relative to the hidden transmitter problems already experienced on most user LANs will be minimal. That is another long discussion to which I will not go into here. For a dual 1200/2400 baud userport I recommend a open squelch detection circuit which detects both 1200 and 2400 baud rather than squelched operation. This is not difficult to implement, I'll try to get together something for the next *Quarterly*.

—Bill NX2P

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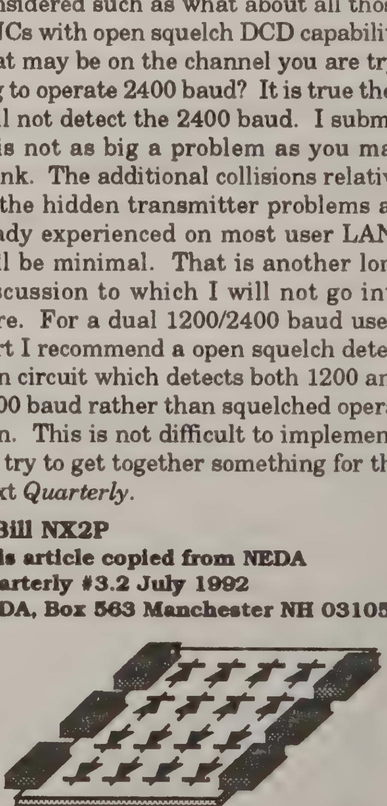


Two TNCs on One Radio

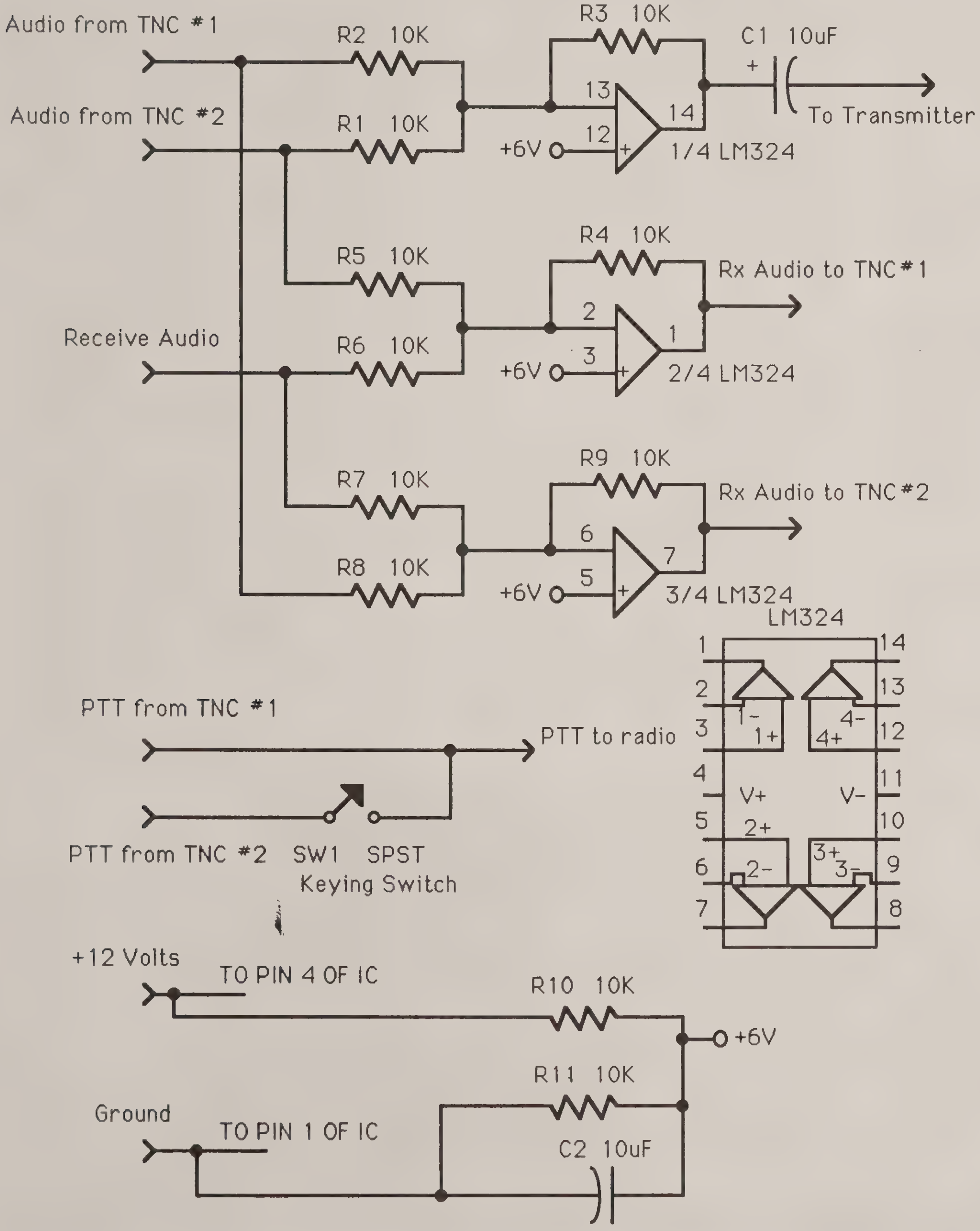
4-30-92 Rich Place WB2JLR

Here is a simple circuit that will let you interface your own personal packet station to the node in your home. I use it for interfacing my packet station, WB2JLR and WB2JLR-4 (PMS) to the CANDGA node. It lets me monitor 144.99, the *user port* frequency, without requiring a second radio. I can also *connect* directly to anyone on 144.99, as well as connecting to the node.

How it works

The circuit uses a quad op-amp, which could be any garden variety part such as an LM324 or TL084. Three sections of the op-amp are used a summing circuits to combine two audio sources into one. TNC#1 is the *user port* for the node, and TNC#2 is another TNC for your personal use and possibly PMS mailbox. The transmit audio from each of the TNCs is summed by the first section of the op-amp to provide a combined audio signal to the 2 meter radio. In this way either TNC can transmit out on the *user port* frequency. The second op-amp section combines the receiver audio with the transmit audio from TNC#2, and feeds it to TNC#1. This allows TNC#1 (the *user port*) to hear both the 2 meter signal and the signal from your own TNC. The third op-amp section combines the receiver audio with the transmit audio from TNC#1, and feeds it to TNC#2. This makes it so that TNC#2 (your station) can hear both signals coming in on 2 meters, and the signals from the node.

An added feature is the ability to control the key line. Normally a switch connects the PTT line from the two TNCs in parallel so that either of them can key the radio. It is possible to open the switch so that transmitted signals from the personal station to the node do not key the 2 meter radio and go out over the air. This may be desired to provide privacy when sysoping the node.



Notes:
Each circuit has unity gain in all directions. The feedback resistors on the op-amps could be made variable if gain adjustment was desired.

It may be necessary to add series capacitors in all of the input and output lines, depending upon the TNC and radio. If the units are already AC coupled then no additional caps are needed.

[A better, but more costly approach to getting the node owner a connect into the network for his own TNC is shown in the NAPRA Notebook under the chapter Burning EPROMs and Putting It All Together.-ed]

—Rich Place, WB2JLR
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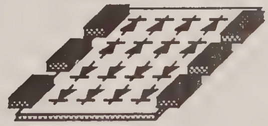


AA4RE BBS Version 2.12Available

AA4RE BBS (also known as BB) version 2.123 is now available, according to Roy Engehausen, AA4RE. It includes lots of new features to make your life as a SYSOP easier including:

- Overlay area is now shared (no more task busy),
- Supports BPQHOST mode direction
- A REVIEW command,
- A command to display routing info,
- Authentication,
- Call directory support,
- Lots of server support, W1NPR wrote a bunch of servers that do just about anything. Contact him for details.

The primary advantage of BB over the other systems is the ability ot handle multiple connections per port with a minimum CPU system. The programs uses it's own multitasker, so no DESQview, DoubleDos, etc. is required. BB has been optimised for speed and requires at lesat 512kbytes of RAM (and usually 640 kbytes) to be used productively. It runs fairly well even on an 8088-based machine.

BB uses a host-mode interface so either G8BPQ or one of the following TNCs are supported: TNC 1 and TNC 2 (or clones) with WB8DED firmware, AEA PK-87, PK-88 PK-232, and the DRSI PC*PA TNC card. Using the G8BPQ switch it can run with a KISS mode TNC or with connection to one or more TheNET TNCs.

The file name is BB212.ZIOP and is available on tomcat.gsfc.nasa.gove which is accessible via SLIP and Internet. It is also available on uscs.edu in directory hamradio/packet/aa4re.

If you want BB on disk, send $5 US to:

Dave Larton, N6JQJ 766 El Cerrito Way, #D
Gilroy, CA 95020-4148
John Anderson, N7IJI   2729 Park Rd
Charlotte, NC 28209
Canadians can send $5 CDN to:
ARES Group Attn: REBBS Update
PO Box 35
St-Jean Chrysostome, PQ G6Z 2L3

For source code, include $2 more (for multiple diskettes). We can handle all formats of 5-1/4 and 3-1/2 inch disks.

BB can also be obtained by downloading it from the BBSs listed in *Software Sources* elsewhere on this page. The software can also be obtained via BITNET by sending a note to ENGE at ALMADEN

—from Packet-Radio Digest
—from QST/ARRL May 1992

F6FBB PBBS 5.14 Released

According to Markku Toijata, OH2BQZ, a new version of the F6FBB PBBS software is now available via anonymous ftp from tomcat.gsfc.nasa.gov or nic.funet.fi (in Europe). The key features of this software are:

- Use of the WA7MBL command set. It also has a set of unique supplementary commands.
- Works on any 100% compatible XT or AT PC fitted with a hard disk and 640 kbytes of RAM, monochrome CGA or EGA VDU, 1 to 8 serial ports.
- Supports user-selectable colors or monochrome without modification.
- Takes advantage of extended or expanded memory.
- Supports up to 50 simultaneous channels on eight TNCs (4 or 8 channels per TNC depending on the software used).
- Supports use of an external multiplexer (schematics available on distribution disk). It supports extension boards if a hardware configuration has more than two ports. The multiplexer connects four TNCs on one serial port: either COM1 or COM2.
  Printed circuit boards available from:

ATEPRA
23 Rue de Provins
77520 Mons en Montrois
France

- Opertes with G8BPQ, any TNC 2 or clone with WA8DED firmware, PK232 or KAM.
- It has server functions (computation of satellite orbits, call directory, operator selectable chapters, gateway to other channels, conferencing, etc).
- Hierarchical routing is supported.
- The ping-pong phenomenon is automatically detected and information is given to the SYSOP via a system message.
- Messages and bulletins for the SYSOP are duplicated to a destiation call sign that can be defined by configuration.
- A detailed log of the PBBS activity is maintained and a statistical analysis program, written by FC1MVP, is also available.
- Provides a gateway between connected stations or with another port.
- Supports conferencing within the limits of the available ports and channels.
- Upon connection, the connect language is attributed to the user depending on the user's callsign.
- Remote SYSOP operation is supported and the housekeeping of the PBBS messages, mail and old mail is done automatically each and every night during programmable low activity periods.
- Works under DESQview.

Message forwarding is WA7MBL-compatible and is optimized between PBBSs using the FBB protocol, which is more efficient on a VHF/UHF network. Forwarding also is compressed to reduce data by a factor of about 40 to 50% in big messages. The messages are protected by checksums, then the transfer is made error-free.

Forwarding is sumultaneous on the various ports regardless whether they are incoming or outgoing. The number of simultaneous forwardings on each port is set by a configuration parameter. The number of incoming forwardings is a function of the available channels. The time and the period of forwarding can be set sep[arately on each port.

Binary transfer is supported by using the YAPP protocol. An extension to this protocol has been made, including the automatic restart and the checksum should a stop occur or a disconnection take place during the transfer. This extension to the protocol works with *TPK*, the packet terminal program written by FC1EBN.

BIDS management (over 2000 are saved in a separate file). A BID is automatically generated if the users does not provide one. Private messagers work with the management of MID. The messages are suppressed automatically after a delay which can be user-defined. This is true for bulletins and private mail.

—from Packet-Radio Digest
—from May 1992 Gateway/QEX/ARRL

Software Sources

Looking for the latest in HAM packet software? Here are the landline numbers for 3 BBS ops and packet ops who keep lots of good stuff on tap!

SALT BBS   KQ1K@KQ1K
508-385-3427

Vectorboard BBS
716-544-1863 or 716-544-2645
300 through 9600 baud including V.32 + V.42. Operated by RFCARC.

AA6ED BBS   AA6ED @ AA6ED
206-271-4657

New Macintosh Packet Program Released

Virtuoso is a Macintosh communications program written specifically for packet radio. it has features that packet radio operators need, and also packs in a lot of bells and whistles to make packet radio communications smooth and effortless.

The program was written by James E. Van Peursem KE0PH, who started his Macintosh packet radio career using programs written for general communications (you know the ones). This was okay for starting but it turned out to be quite a bother and he found himself spending more time trying to get the program to do what he wanted it to do than actually communicating on packet. He also has seen literature for other packet radio communications programs, but the seemed to lack the power and ease of use that he had grown to love in a Macintosh program.

James says that *Virtuoso* is his solution. It packs all of the power of the best of the programs and is written specifically for packet radio, so operating has never been easier. Some of the features now implemented are:

- Powerful scripting to automate routine tasks,
- Automatic execution of a script when starting and quitting,
- Save incoming text to disk file,
- Append a selection of text to the end of an existing file,
- Print a selection of text,
- Fine the last time you heard someone,
- Spelling checker checks words as you type them,
- Windows can be scrolled to see previous text,
- Supports full font, size, style and justification,
- Supports 300 to 9600 baud operation and
- Automatically puts your TNC in the KISS mode upon quitting and exit it from KISS mode at start-up.

A channel window has two panes. The top pane contains the incoming information from your TNC. The bottom pane contains what you type and send to your TNC. The size and location of the channel window can be changed easily as in any other Macintosh program. Both panes can be scrolled up and down to see items that scrolled of the screen.

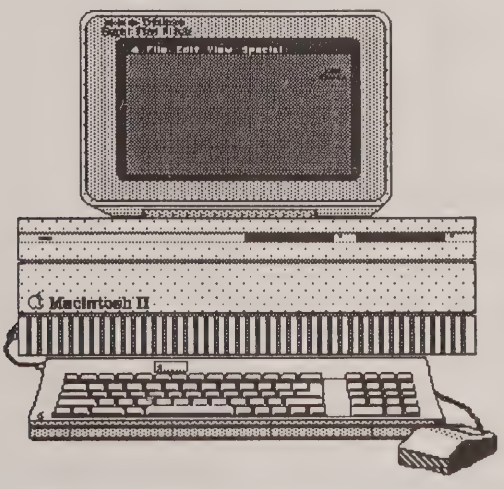
A keyboard buffer window allows you to type long messages before they are transmitted. This window supports the cut, pasted, clear and undo functions (like any good text editor).

Users may use the control key or the option key (if they don't have the control key) to send control characters to the TNC. USers may optionally strip received line-feeds or all control characters before displaying and saving received dat to disk. CTRL-Gs can be passed to beep your computer if desired.

Virtuoso is shareware, that is, it is distributed freely, however, if you decide that you like the program and keep on using it, you must pay the shareware fee of $20 US. In order to check your spelling, *Virtuoso* nees a dictionary. This is available for $10. To register *Virtuoso* ($20) or to register *Virtuoso* and receive the dictionary ($30) write to:

James E. Van Peursem, KE0PH
RR #2, Box 23
Orange City, IA 51041

—from May 1992 Gateway/QEX/ARRL



Youth Activities

This information is copied from *The Packet Racket* which is published occasionally by the Young Amateur Radio Operators Club and distributed to all of the United States via packet. The YAROC net is held at 1700z on 14.28 MHz, and at 1730z on 28.375 MHz.

Anyone of any age is encouraged to submit material for the newsletter. Inputs or comments should be sent to me, KB8FOU @ N6IIU.#NOCAL.CA.

Schools in need of packet-pals

- 1A.S. Leary Elem School Amateur Radio Club; WA3TQJ @ WA3TSW. #EPA.PA.
- Glendale Elem School in Tonawanda, NY; Doug Smith, 5th grade teacher at KB2FID @ WB8JUI.#NCOH.USA.NA
- Clinton Middle School in Clinton, WI at WB9EZY @ WA9AJW.WI.USA.NA
- Omak Middle School in Omak, WA. Rob, KD7H @ N7HHU.WA.USA.NA
- Tod, N6WYJ, is setting up a station in his 8th grade science classroom in Northern CA and should be reached at N6WYJ @ WA6NWE. #NOCAL. CA.USA.NA or through the father of one of his students, Gerry - WA6E @ WA6NWE. #NOCAL. CA.USA.NA
- Madison Senior High School, Trotwood, Ohio; Tim, KB8DDG @ W8BI.#DAY.OH.USA.NA
- Bill, VE5EE @ VE5AGA.CAN, runs VE5SAT at the Kitchener Community School; Regina, Saskatchewan, Canada.
- Pam, N2DGD. School is WA2EWY @ KA2JXI.NY.USA, L.P. Quinn is the name of the school in Tupper Lake, NY.
- N0ANK @ WA0RGV.IA.USA is a 9th grade science group at North Linn Senior High near Troy Mills, IA.

These school groups are looking for hams to communicate with their students (some of which may have their ham licence also) via packet. Send updates or corrections to KB8FOU.

–Travis, KB8FOU
copied from packet radio

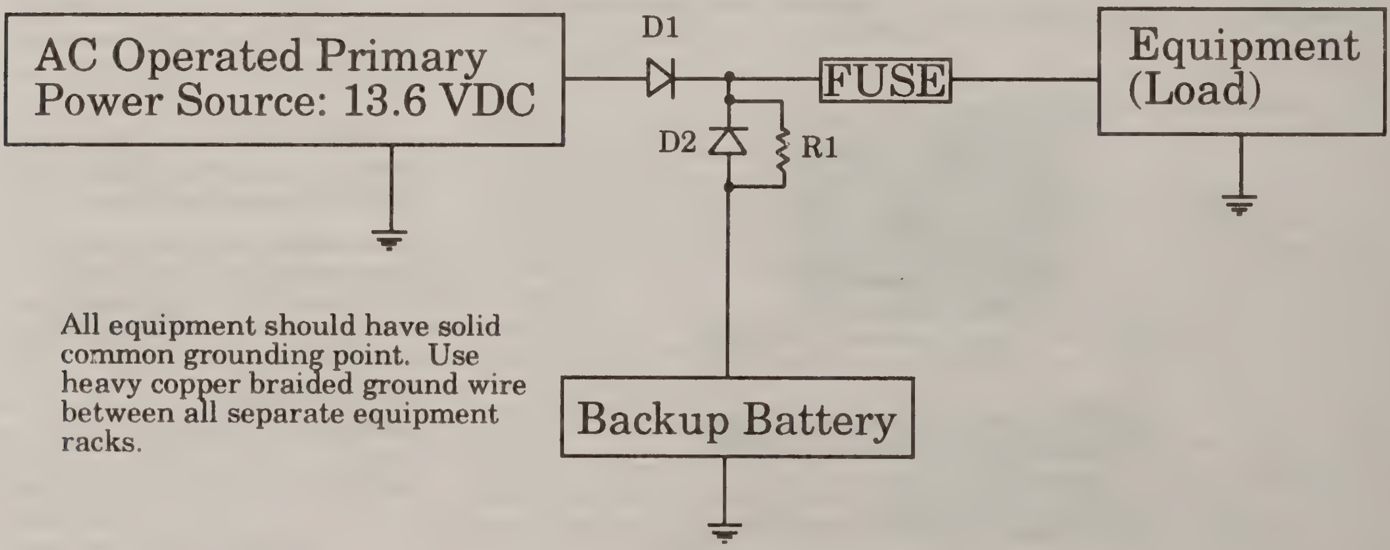
Network Station Hardening - Preparing for the Worst of Times

Starting with this issue of the *Quarterly* I am going to try to feature some articles on how to "Harden" your packet station or network site for emergency applications. Site hardening is a term that comes from military specifications for equipment intended to operate under very extreme conditions. While it is true that what we do is mostly hobby related, there is no reason why in some cases we cannot take reasonable measures to insure that our equipment does not become useless at the drop of a hat, or as in this month's column, the drop of your local AC power line during a storm. Hopefully over time the *Quarterly* can cover some of the more common conventions for what is good engineering practice to protect your station or node from various forms of hostile environment. For this month though I am only going to provide a simplified way to keep your equipment powered up should your power source die or bite the dust.

There are many forms of backup power systems, some are good, some are only mediocre when considering cost, ease of installation and overall effectiveness. The system shown in the diagram here is profoundly simple and I have been successfully using this configuration for a number of applications for at least 12 years. As you can see there are no switches, relays, sensors or other gizmos to clutter up its effectiveness. The entire trick is done by isolating 2 power sources, one AC powered and one from a standby battery, using a simple set of blocking diodes. The battery should be of sufficient size and amp/hour rating to run whatever equipment it is connected to for the amount of time you wish as an emergency operating period. Ideally this should be 24 to 48 hours of run time if your site is not easily accessible and is required for emergency use from time to time. More capacity is desirable, but not always feasible due to power/cost restraints. The diodes should be whatever new or surplus monster diodes you can muster that will easily handle the continuous loading of your equipment PLUS your battery bank if it is being recharged. The main AC power source should be capable of operating all your equipment at maximum load AND be able to recharge your battery bank thru charging resistor R1 at the same time. The fuse is to protect the equipment from damage if anything goes wrong with your setup and allows obvious protection for the power supply and battery if the equipment is the thing to go west. The really neat thing about this setup is that you can make it as BIG or as little as you want, merely scaling the sizes and ratings of the components to match your application. My smallest application is a 12V 5 A/h cell on 1/2 of a Radio Shack 2 amp bridge rectifier being fed by a 500 ma 13vdc wall transformer , bridged by a flashlight bulb for R1 and the whole array keeps a TINY 2 alive for an EOC mini-BBS with a low power radio. The largest application so far uses 2 large stud 50 amp rectifiers and floats a set of 2, 12vdc 40 A/h wet cells. This setup uses an automotive headlight for R1 to limit return current to the cells and the array feeds the main DC power buss to hold up all the radios on the backbones of a major node site. In such setups it is important to set the float voltage getting to the cells at full charge such that the batteries are not being constantly overcharged. This can lead to dangerous outgassing in some cases, or overheating of the cells. It is important to take precautions in such cases to make sure that adequate ventilation is present and that the cells are not charged or floated at a rate beyond specs.

If you wish it is possible to add all sorts of bells and remote whistles to this setup. For example, if you put a continuous duty relay on the AC source side of D1, and route all non-essential equipment power thru its contacts, then when the power goes out, all the non essential equipment goes instantly off line, leaving the more essential stuff on line. When commercial power is restored, the powered down stuff comes back up. Simple yes? Remote control of TNC's and peripheral hardware can also be achieved by using the LED ON / LED OFF feature of some TheNET code. By using a suitable switching method a node manager can remotely control the power on equipment that might best be shut off when the node is needed for some emergency application.

Continued on next page



All equipment should have solid common grounding point. Use heavy copper braided ground wire between all separate equipment racks.

Good Questions

Q: What is meant by* slime trail*? I keep seeing references to this and still don't understand what it is. Can someone describe that this is in layman's terms and why its supposedly a bad thing?

A: A *slime trail* is the nickname given to the effect where a TheNET node will add to its nodes list the callsign of a node that routes to it using an L3/L4 circuit. The effect is noticable when you do a NODES command at a node and might see some callsigns without mnemonics attached at the beginning of the NODES table. Such callsigns are not put into the table thru the normal *nodes broadcast* process that each node sends and receives from adjacent nodes. They are instead put into the nodes table after a node receives an L3 routing request from a distant node which knows about the destination but the destination does not know about it.

After lots of experience and research on the effect, the NEDA Technical committee decided that *slime trails* are generally not a good thing, therefore the NEDA Participating Node Parameters are setup to prevent *slime trails* from occuring wherever possible.

Without going into technical jargon and detail, the problems with Slime Trails boil down to 3 problem areas. 1) *slime trails* cannot be accomodated in nodes whose tables are full and thus if one relies on this method of TheNET routing it is possible to experience erratic network results. 2) "Ingress" from uncontrolled areas of networking is possible wherein a node or L3/L4 source "piggy backs" on the temporary *slime trail* thus gaining access to an L3/L4 route that would otherwise not be available. This represents poor network management. 3) Erratic routing disturbances can occur wherein a station might use a *slime trail* which will abruptly go away when the station with the *trail* does a nodes broadcast and tosses the planted marker off its nodes list. The user then has no idea why a previously "working" circuit has abruptly disappeared.

There has also been evidence to show that additional undesirable effects can happen too. On at least 2 occasions node ops have reported observing planted *slime trail* markers bumping existing nodes off the primary list. It is unknown if this effect is currently a bug in TheNET PLUS V2.08 and above. Anyone experiencing this effect and the conditions under which it occurs should report it to the NEDA Technical Committee.

Q: Recently I upgraded the software on one of my node ports from TheNET Plus V2.06 to TheNET Plus V2.08B. I also took this opportunity to upgrade to the current NEDA parms as listed in the last* Quarterly*. When I turned on the node, it still showed the previous parms. Its not that it didn't work ok, everything seemed to be working well, but the parms were the same as the default parms from the previous code! Can someone explain this to me?

A: This is a simple fix that is sometimes not clearly documented in the notes on how to set up a TheNET node. The NEDA Resource Manual hinted at this problem without clearly describing what the effect was. Basically, what is happening is that because the TheNET code you were running before is so similar to the code you are trying to newly install, the TNC doesn't know the difference and tries to operate off the values stored in its static RAM.

There are 3 easy ways to handle this, any of which will work. You should adopt one of these, which ever is most convenient for you, and use it each time you swap out EPROMS at your node site. Method 1 is to merely pull the backup battery plug and let the TNC sit for several minutes , long enough for the TNC to loose its stored values. Method 2 is to put in the new EPROM, then from the RS-232 port, connect to the TNC and give it a RESET command. The 3rd method, which I prefer myself, is to drop in a totally different EPROM like say a standard TAPR user code chip or for the PacComm TNC's a PMS 3.0 chip. Simply turn on the TNC, wait for the bootup LEDs to go out, then unplug the EPROM and plug in your *new* node EPROM. The TNC will reboot to the totally different code and there will be no scrambled memory effects.

Please submit questions for this column to NEDA @ WB2QBQ.ny

—That Answer Guy

This article copied from NEDA Quarterly #3.2 July 1992
NEDA, Box 563 Manchester NH 03105

Hardening from previous page

This is just a primer to get your brain in gear. Hardening a station is sometimes no more than doing some simple things to make it less susceptible to being interrupted. Power is just one of a number of things to take into consideration. Next time we will look into some simple steps to effective lightning /surge protection. Meanwhile, just make sure your AC powered supplies are plugged into readily available commercial surge protectors. At a few bucks a piece it isn't worth ***not*** having one in line with your gear! You may also be amazed to learn how cheaply you can DC ground your antenna systems! Remember that in the packet network, the total throughput effectiveness is only as good as the weakest site. Don't let the weak link when we need the network be yours!

—DANA WA2WNI
NEDA Emergency Services Advisory Committee

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NEDA, Box 563 Manchester NH 03105

BLAM!!
Was it protected?

Converting the ICOM IC-471A for 9600 Baud Operation

Don Lemke, WB9MJN
24 March, 1992

This document details the modifications neccassary to operate 9600 baud .5GFSK data modulation thru an Icom IC-471a transciever. This is the modulation that was originally developed for Ham Radio usage by Steve Goode, K9NG, and also employed in the G3RUH and TEXNET modems.

Modulator

The IC-471a has a "Direct FM" Modulator. This modulator uses a varactor, D4 on the "MAIN" C.B. (Circuit Board). This modification patches the 9600 baud FSK Transmit Audio into the modulator circuit, in a way that transmit audio, and the FSK audio have minimal distortion. As with any 9600 baud modification to a "Direct FM" modulator, readjustment of the audio deviatation is recommended, after the modification.

Step 1: Replace C17 with a .47 uF, 25 w.v. non-polarized capacitor. The capacitor should be physically appropriate in size. I use one that had a .3 inch lead spacing, was about .4 inch square, and one eighth of an inch thick.

Step 2: Attach on the bottom of the C.B., a 3.3 KOhm, 1/4 watt resistor to a C.B. trace between R30 and C17. Leave the far end free.

Step 3: Attach a .001 uF, 50 w.v. disc ceramic capacitor to a ground C.B. trace near the free end of the 3.3 KOhm resistor. Twist the free end of the resistor and this capacitor together.

Step 4: Attach a piece of small coax to ground, and the junction of the resistor and capacitor. I used RG-178 coax. The center conductor gets attached to the components. Insulate the connections with Fiberglas tape, so that when the C.B. is reinstalled the connections will not short out against the chassis, or the C.B.

Step 5: Solder the other end of the coax to MOLEX socket terminals (#02-06-1103). Insert the center conductor terminal into the "Auxiliary" connector position number 9, and the ground into "Auxiliary" connector position number 17. This completes the Modulator modification.

TX/RX Turnaround Time Improvement

The stock IC-471a applies power to its TX'er audio stages only during transmit. Thus, when the transmitter comes on, RC time constants in these circuits cause the transmitter to drift for approximately 1 second. To cure this problem, this modification reroutes the DC power for Q1 to a filtered +8V point, and enables the IC1 stages continuously. This modification is to the IC-471a "MAIN" C.B..

Step 1: Cut free the long lead of R26, which should be towards D3.

Step 2: Solder a piece of jumper wire onto the free lead of R26, and insulate connection with heat shrink tubing.

Step 3: Solder the far side of the jumper wire to IC1, pin 8.

Step 4: Solder another piece of Jumper wire to IC1, pin 8 and far end of this wire to the junction of D1 and R4. This completes the TX/RX Turnaround Time Improvement modification.

Receiver FSK Audio

The IC-471a uses a MC3357P Receiver IF chip. The discriminator output of this chip has a low enough impedance that it can directly drive a shielded wire without the signal being distorted. In addition, this audio signal is provided an unused C.B. header, J14 on the "MAIN" C.B. which is easily used to connect the signal to the rear panel "Auxiliary" connector.

Step 1: Obtain a .1 inch spacing, 2 position, socket which will fit onto J14 and solder subminuature coax to the socket, so that the center conductor socket will mate with the J14 pin on the "R214" side of J14. The ground lead is soldered to the other position of the socket. The MOLEX catalog shows a part number 22-01-2026 for the connector housing, and it requires 2 type 4809c terminal inserts.

Step 2: Solder a MOLEX socket terminal (#02-06-1103) onto the other end of the coax, ground lead.

Step 3: Solder a .47 uF, 25 w.v. capacitor to another MOLEX socket terminal. Connect the coax center conductor to the other lead of the .47 uF capacitor, and insulate this connection with heat shrink tubing.

Step 4: Insert the coax ground conductor terminal into the "Auxiliary" connector pin 15, and the capacitor terminal into pin 11.

This completes the yeceiver FSK audio modification. Bringing it all together: The MOLEX part number for the "Auxiliary" connector mate is 03-06-2241, and the pin terminal part number is 02-06-2103. The connector has 24 pin terminal positions, so if you plan on using all these positions someday, order 24 of the 02-06-2103 part number.

Comments on filters

The IC471a has the ideal Receiver IF BW for 9600 baud operation. As part of this project I measured the Receiver IF BW to be 14 KC at -6 dB. The 455 KC Filter part number spec is 15 KC BW at -6 dB. The IC471a also has a crystal filter for the transmitted signal. On the RF.YGR C.B., FL2, a part number 70M15A, is part of the transmitter. The part number indicates the filter is 15 KC wide at 6 dB down, I believe. The effect of this filter is to reduce the single bit transitions of the K9NG modulation, by a small amount and time delay distort the signal a small amount. All I can report, is that this is not causing a big problem here on the terrestrial 9600 baud LAN, where other users have TEKK and IC-475a radios. The IC-475a has this same filtering. I am looking to replace this filter with a 20 or 25 KC wide at 6 dB down filter. In a complete transmitter to reciever path, the signal passes two time delay distorting filters, of the best BW for detection, for these type of filters. This de-optimizes things some. This report will be sent thru the IC-471a, 9600 baud station here, to the network, however. Illustrating that the effect is small.

IC-471a problems

This IC-471a was used when I obtained it. Looking at the manual spec for receiver sensitivity, of .5 uV for 20 dB Quieting, many of you might cringe. After looking at the receiver line up, and the parts used, this performance seemed somewhat odd. This is not a radio with a 6 stage helical resonator front end filter, and J-fet mixer! That type of radio would typically give the IC-471a' specified performance. The IC-471a is designed to have considerably better sensitivity than this, although obviously at the expense of front end overload handling. Something is wrong. Measurement of my used IC-471a showed that besides the production and/or design problem I suspected, something was really wrong with my particular radio. The

Continued next page

New TAPR kits introduced

Tucson Amateur Packet Radio (TAPR) introduced two new kits at it's annual meeting: a 9600-bit/s modem and a satellite tracking antenna controller 9600-bit/s Modem

The new 9600-bit/s modem kit incorporates many enhancements over the K9NG modem kit which has been available at TAPR for several years. The new kit offers full-duplex operation, improved transmit spectrum, improved clock recovery, DCD and an optional bit regenerator for use as a full-duplex 9600-bit/s repeater. An optional clock is available for stand-alone bit regenerator usage or elsewhere where not provided by the TNC. The modem connects to the standard TAPR modem disconnect header and fits inside a TNC 2, PK232 and many other TNCs. The kit costs $70 including shipping and handling in the US. The bit regenerator option is $10 and the clock option is $5.

Satellite Tracking Antenna Controller

By arrangement with JAMSAT, TAPR is offering in KIT form the TrakBox developed by SM0TER, JA6FTL and others. This requires a computer or terminal to enter the Keplarian data. It has an LCD display and runs stand-alone after loading the data. It directly controls the Kenpro/Yaesu rotators and can be adapted for other types. It also provides Doppler correction for the Kenwood, ICOM and Yaesu radios that are used for satellite communications. The kit costs $185 including shipping in the US.

Both kits are available now from

TAPR
PO Box 12925
Tucson, AZ 85732

602 749-9479 Tues.-Fri,
10AM -3PM MST

—from Bob Neilsen, W6SWE, via Compuserve's HamNet
—from May 1992 Gateway/QEX/ARRL

IC-471A from previous page

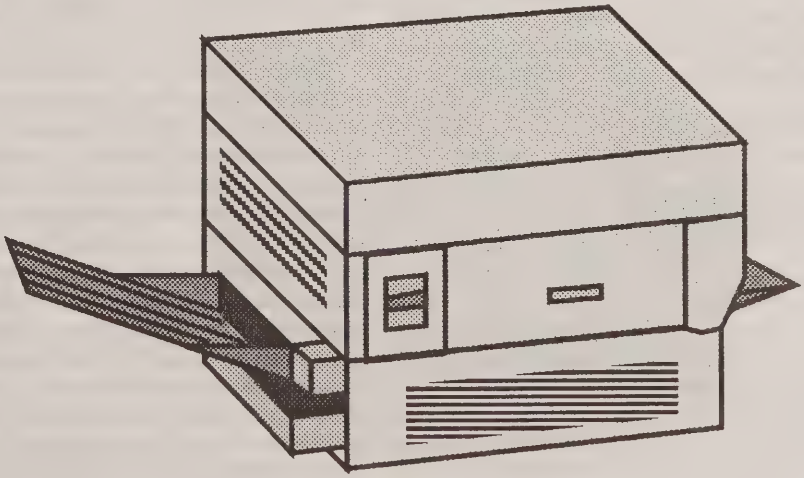
sensitivity varied dramatically with temperature. It would start out on spec, then slowly get as bad as -90 dBM for 20 dB quieting. This is BAD! I tracked the variable sensativity to a problem in the PLL box. As the unit warmed up, its output would vary from around .75 vrms to less than .1, on center band. I never "fixed" the PLL, but by removing the cover, and putting 1/4 inch spacers between the PLL enclosure and the module that is mounted over the PLL box, the PLL stabilized with enough output, that near spec sensitivity was maintained. Next I went after the poor spec. While finger testing L29, the sensitivity improved, greatly. After replacing L29 with a new coil, with an additional turn (3 instead of 2), and the sensitivity improved about 20 dB. A 20 dB quieting signal needed less than -110 dBM, which is about .2 uV. This is the typical range for UHF receivers of this design! L29 is part of a PI circuit used to transform the PLL output impedance of 50 ohms to a very high voltage and impedance needed by the first receiver mixer stage, Q12. At this sensitivity, with a 19 element F9FT Yagi, UO14 9600 baud was very easy to copy for most of the pass, even without a preamp. I include these experiences in this article on how to do 9600 baud packet, to hopefully make it clear to people that even a pretty looking radio can perform like garbage, and that if the radio isn't working in the first place, the 9600 baud packet radio is not going to either. Nobody should expect that they will be able to do 9600 baud Packet radio, with existing rigs, like they would do 9600 baud telephone line communication. Yes, you may actually need to learn and do some hardware electronics to do this.

Concluding remarks:

With these modifications, the IC-471a makes a nearly ideal 440 band 9600 baud packet radio. I've used mine on UO14, as a receiver, as well as over our 9600 baud terrestrial LAN. A PING test thru N4PCR-0/1, which uses a TEKK radio, and preamp, and one of the CELLNET 56 KB, FDX radios described in the file CELLNET.UPT, to the K9VXW-1 node, where the other CELLNET prototype FDX radio is, passed 98 of 100 kilobyte packets with the NOS Window = 2048, MSS = 216. I hope this article is helpful, and will encourage some of you to take the plunge and try out 9600 baud packet radio.

All commercial use of the information developed by the author in this article is reservered. Like somebody said, "I'm not making money at this, and I don't want you to make money off me either". In other words, you are free to do these modifications for yourself, or have somebody do them for you, if he or she gets nothing in return for it.

—73, Don WB9MJN @ N9HSI.il
This article copied from NEDA Quarterly #3.2 July 1992
NEDA, Box 563 Manchester NH 03105



Minutes from page 2

5. OLY and TAC node 'problems'

Scott, N7FSP, indicated that the network was having a problem because both the TAC and OLY Nodes were running with "open" parameters.

A discussion followed concerning the existing NAPRA Packet Radio Node Coordination Policies and Procedures. It was agreed that the published procedures dealt very little with the actual operation within the RF Cells. It was established that NAPRA was the coordination entity for the 10 packet frequencies 144.91 MHz to 145.09 MHz and was responsible for Spectrum Management over these frequencies. Beyond that NAPRA was in a position of disseminating information on how to best run the network, but not dictate how the network will work.

Information needs to be available to all node Sysops on how the network functions, and cooperation among node Sysops is then needed in order for the network to work smoothly. NAPRA's job is to make the information available to all node Sysops, any future Sysops, and the Packet Radio community in general. Tadd, KA2DEW, suggested the BOD take on the task of rewriting the coordination policy and generating an operating procedures document with the above information in mind. No action will be taken concerning TAC and OLY at this time.

6. Not For Profit Incorporation

John, KA7TTY, indicated that after some investigation in the past, the BOD could not come up with a good reason to complete the Incorporation so the item was tabled. John, N0NDO, was asked to investigate this item with a fresh set of eyes and report back to the BOD.

IV. Adjourned

Meeting was adjourned at 12:50 PM.

—John - KA7TTY
Secretary

Minutes of the NAPRA BOD Meeting
Apr. 11, 1992

I. Call to Order

The Board of Directors meeting was called to order 10:12 AM at the BEARS ham shack in Renton by President Tadd, KA2DEW. Attendees were:

Tadd Torborg	KA2DEW
Scott Cronk	N7FSP
Peter Dahl	WA7FUS
John Painter	N0NDO
Peter Kallio	N7ENT
John MacDuff	KA7TTY
Bill	KD0JU
Moe	WB0RTF
Toni	N0NLC
Todd	N0MXT
Dick	K7TPN
Andy	W7KCJ
Bill Heaton	N7WRI
Conrad	N7DUO
Dick Umberger	N7HHU
Mark	KB7HDX
Ken	N7QAN
Gary Lewis	WA7BBJ
Chris Teague	WB8YPO

Introductions were made all around.

II. Old Business

1. Treasurer's Report

By Peter, WA7FUS

Treasurer's Report
For period ending 4/11/92

Dues received (6)	90.00
Expenses	
Zero Retries printing and postage	167.88
Bank Charges	8.00
Ending Balance	**$1609.26**

2. Property Report

Equipment NAPRA has for network building - There was discussion about offering to sell this equipment to the present holders. The purpose is not to remove equipment from the current uses, but also not to give it away. Equipment not in use in the network will be offered to the present holder. John, N0NDO, moved that a committee of 1 or 2 people who know the state of the equipment and the people involved be formed to contact the present holders of the equipment and offer to sell the equipment to them at 60% of the current value or ask them to make a counter offer in writing. These offers are to be brought to the next meeting to be voted on. Seconded by Pete, N7ENT. Passed.

3. Editor's Report

Pete, N7ENT reported that the latest issue of Zero Retries has been sent out and everyone should have it by now. Pete has sone extra copies available. Mailing was done first class on Mar 22nd at a cost of $81.64; printing was $75.60 (52 cents postage 38 cents printing plus envelope and labels, total $1.05 each). A total of 200 were printed, 157 sent out.

4. Secretary's Report

Minutes from last month were sent out on packet. John, N0NDO, moved that we accept the minutes as sent via packet. Pete, N7ENT seconded and it passed.

Tadd, KA2DEW, reminded everyone that the June BOD meeting will be an executive session held in Lynnwood and there will be no General meeting. The May meetings will be in Tacoma, as will the July meetings.

5. SuperSwitch Software

Scott, N7FSP, reported that it is working wonderfully. It hasn't crashed for some time. Scott is running it on a 286. It runs 8 COM ports at any speed full duplex, and replaces an Octopus connection for tying together TNCs in a node cluster.

Scott will be changing his 220 BBS forwarding frequency again soon. Also, from inside the network, it will appear that the ALKI nodes are at the same location as SEA. This is all part of the upgrades that Doug, WB6VAC, is making to the SEA/SEAW nodes.

6. South Sound Cluster

Tabled from last meeting - It was agreed that setting parameter 3 to 192 on user and backbone ports was bad. John, N0NDO, moved that we draft a letter to be sent to the sponsoring organizations for the two nodes and send it around to the BOD for review. The letters should explain why setting the parameters this way is bad and should include back-up data to show what kind of problem may be caused by setting the parameters the way they have set them. The idea being to educate and present our position and not condemn. Pete, N7ENT, seconded the motion. The problem being caused is that these nodes are broadcasting out into the users in the area "time to live" data such that there are nodes showing up on node lists that can not be connected to. This is causing confusion and makes it appear that the network is not working. Passed. Scott, N7FSP, and John, N0NDO, will draft a letter for presentation to Tadd.

7. *Conversion to point-to-point backbone links*

Lots of talk going on. No actual changes have been made yet. Pete, N7ENT, indicated that he is gathering equipment to move his BBS-to-Node link off the user frequency, but some of the equipment in not in his hands quite yet. The goal is to keep all node-to-node, server-to-node, and server-to-server traffic off 2 meters. This will allow better use of the 10 frequencies for users. This other traffic should be handled on 220, or 440, or 1296. 6 meters is also available and there is a lot of band allocation set aside for packet. Tadd indicated that he knew a source for 6M radios that could be re-tuned for the ham frequencies and would work great.

8. *Not for Profit Organization incorporation*

John, N0NDO reported that it is attractive for NAPRA to be a NPO. Liability issues are the big item. Cost is minimal. Washington requires an Articles of Incorporation, and then By-Laws to run the organization. John moved that he will submit a brief abstract to the board members this next week asking for input. He will then file with the state underwriting the filing fees himself. Seconded by John, KA7TTY. Hopefully by next meeting we will be an NPO. The mo ion passed.

9. *Review of N7HFZ's continuance as Director-at-Large*

Steve has not attended any BOD or General meetings since being elected. He has indicated his desire discontinue as a director. John, N0NDO, moved that we accept the resignation of Steve, N7HFZ, from his position as director of NAPRA. It was seconded and passed.

10. *Committee for NAPRA equipment list*

We failed to appoint anyone as the committee to contact holders of NAPRA equipment (item 2 above). Peter, WA7FUS, and Scott, N7FSP, will handle it.

III. New Business

1. *Funds for publication of Newsletter*

We currently spend 1/20 of dues on newsletter. Pete, N7ENT, moved that we place a current limit on the next quarterly issue of Zero Retries including printing, postage, etc. without coming back to the board for authorization of $2.00 per document. Seconded by Scott, N7FSP. Discussion included that a better newsletter would provide more information for the members and hopefully allow them to use it to do more things, have more fun and encourage others to do the same. The motion passed.

2. *Name for club newsletter*

It was suggested that Zero Retries as a name had a negative marketing connotation, and maybe a better name could be found. Some suggestions Maximum Thru-put, or Dedicated Link. Pete, N7ENT, moved that we poll the general membership in the minutes and any NAPRA documentation that may be sent out before the next BOD meeting for possible new names for the quarterly publication, and a 1 year subscription be offered to the person coming up with the best name. Seconded by John, N0NDO. Passed.

3. *'Welcome to NAPRA" book*

Tadd asked for allocation of funds to generate, print and distribute copies of this book to board members for approval. It will consist of about 100 pages and would include such things as information on networking, how to set up a The NET node, how to interface it to TCP/IP, how to run a BBS, lots of technical articles, lots of graphics. There will need to be about 50 proof copies made during the development for BOD and committee doing the writing. The estimate was $150 ($3.00 each for printing and postage, etc.). John, N0NDO, moved that we allocate funds not to exceed $150 for proof copies for approval by the board of a "Welcome to NAPRA" book with Tadd, KA2DEW, being the primary contributor and with Pete, N7ENT, assistance with a time line of 60 days. Seconded by Scott, N7FSP. Passed.

4. *Bylaws/Constitution change*

Our present Constitution and Bylaws require changes to be submitted to the BOD at a meeting then it gets voted on at the next General Meeting following. The change being proposed is to replace both the Constitution and Bylaws with a new Bylaws (the State only requires an Articles of Incorporation, and Bylaws). Following approval of the change, another document will be created to detail all the Standards and Practices that have been developed over the years in the minutes of BOD and General meetings. The area covered by the club would be expanded to cover all of the Northwest. Meetings would be split into BOD meetings quarterly central to the geographic area, and general meeting more frequently at places all around the area. Directors would have appointed alternates to fill in for them when they could not be present. Memberships would be split into 2 grades: Associate and Voting. All present members would be grandfathered as Voting members. Associate members would get all the publications, etc. but would not have voting rights at meetings. Membership fee for Associate members would be $15. A Voting membership would cost $25 and would allow voting, running for director or other office. Voting members would be specifically invited to the quarterly BOD meetings. John, N0NDO, moved that we send out the change as discussed by a special mailing. Pete, N7ENT, seconded the motion. Pete suggested that we include statements from the present board members should be included. John, N0NDO, moved we amend the motion to include an up to half page comment or statement from each of the BOD members if they desire. Pete seconded the amendment. The motion as amended passed. Comments are due from BOD to Pete, N7ENT, by Wednesday Apr 15th.

5. *Rules regarding NAPRA control over networking*

Current policies allow NAPRA to yell and scream at anyone who violates the coordination rules. Tadd asked for a motion that NAPRA as a body and board of directors is not allowed to stand on people for violating their "Coordination Rules". Peter, WA7FUS, so moved. It was seconded. The idea will be to educate people why they may be causing problems to others, etc. and not stomp on people. The motion passed.

6. *Miscreant nodes on 2m*

Recommended procedure for handling miscreant server/node operation on the ten 2m packet frequencies - John, N0NDO, moved that NAPRA encourages the involvement of the people who have the problem to work the problem out themselves and that NAPRA will provide a set of guidelines technically as a recommendation but NAPRA will not be involved in the initial phases of the resolution of a problem. Only if it can not be resolved that way will NAPRA become involved. It will take consensus of the Board members to further solve the problem. Seconded by John, KA7TTY. Motion passed

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7. N7FSP's request for comments

Scott, N7FSP, asked for comment from BOD as to what NAPRA is doing right with the network and what they are doing wrong. 2 comments were received. Comments were filed with the secretary for review in the future to see how we are doing. Pete, N7ENT, indicated that there was one thing we could do right now to change what was going on in the network. We have a policy of discouraging BBS DXing. Pete moved (as amended) that we drop the policy of discouraging BBS DXing. John, N0NDO, seconded. Passed.

8. Notice for Protection

Notice for protection presented by Scott, N7FSP. AA6ED, WB7DCH, and WA7BHH have been operating servers on frequencies of other servers, including beaconing. John, N0NDO, made a motion to try to resolve the problem. It was seconded by Pete, N7ENT. Chris, WB8YPO, suggested a third party contact all the individuals involved and try to arrange a solution. The motion on the floor was tabled at the request of John, N0NDO. Chris agreed to take on the problem. Pete, N7ENT, seconded the table motion. Passed

9. New member-at-large

John, N0NDO, moved that Ken, N7QAN, be appointed to the vacant position left by Steve, N7HFZ. Ken was in agreement. Seconded by Scott, N7FSP. Passed.

10. N7FSP Resigns

Scott, N7FSP, submitted the following:

"In support of the new plan for NAPRA and in recognition of the fact that my presence on the board seems to be limiting NAPRA's growth I wish at this time to resign my position on the NAPRA board of directors.

"I am not leaving the club but hope to support the club in whatever way the club feels will do the most good.

"It is my opinion that the bad name that I have in some packet circles is not rational. Much of this, I feel, is fueled by a few hams who believe that my involvement and suggestions is deflating of their egos. These few hams have, for years, run a determined campaign of Scott bashing. It is also my belief that these same folks will continue to be an on-going and reoccurring problem to whomever replaces me.

"Over time many of you who have been active in networking and BBS sysoping will come to realize that almost all of my suggestions about packet networking have, in fact, been reasonable. I find it very rewarding to see that on the east coast there is a club that has been promoting many of the same things I've been trying to promote, for years, in this area.

"That east coast club has been extremely successful. It's good to see that the drive and determination of a few newcomers to this Pacific Northwest will probably bring that level of performance and enjoyment to our hobby in this area.

"I hope that we'll all have less friction and more fun with our hobby in the future. Thank you, and with that, all my notes and other things shall be forwarded to the secretary for distribution and records as necessary."

John, N0NDO, moved to accept Scott's resignation as read. Pete, N7ENT, seconded the motion. Scott was congratulated for desire to stay involved in packet radio. The motion passed.

11. Appoint Exec VP

John, N0NDO, nominated Bill, N7WRI, to fill Scott's remaining term. Pete, N7ENT, seconded the motion. Bill consented to the appointment. It was mentioned that Bill is a software guru and has been active in computer networking for many years. Motion passed.

IV. Adjourn

Pete, N7ENT moved to adjourn. John, N0NDO, seconded. Adjourned at about 12:45 PM.

—John,KA7TTY
Secretary

Minutes of the NAPRA BOD Meeting May 9, 1992

I. Call to Order

The Board of Directors meeting was called to order 10:07 AM at the Radio Club of Tacoma Club House by President Tadd, KA2DEW. Attendees were

Tadd Torborg	KA2DEW
Peter Kallio	N7ENT
John Painter	N0NDO
Bill Heaton	N7WRI
John MacDuff	KA7TTY
Scott Cronk	N7FSP
Chris Teague	WB8YPO
Ken	WA2JQW
Peter Dahl	WA7FUS late
Richard Umberger	N7HHU late

II. Old Business

1. Treasurer's Report

Since the Treasurer, Peter, WA7FUS, is not here, but is on his way, his report will be made later.

2. Editor's Report

Peter, N7ENT, reported that the special issue of Zero Retries with the proposed Bylaws change, was sent out about April 20th. There were 125 copies made and 115 sent out. The average cost was $.516 each, for a total of about $60. With the move of the BOD meeting for next month, Peter will be accepting input for the next regular issue until June 6th.

3. Secretary's Report

John, KA7TTY, stated that the minutes were sent out as a bulletin. Peter, N7ENT, moved that the minutes be approved as issued in the bulletins. It was seconded and passed.

4. Other Packet Clubs

Peter, N7ENT, reported on receiving a message from Jim, KA7EHK, TOPS President, concerning our inquiry several months ago about who we should coordinate with in Oregon relative to packet frequency coordination in Western Washington. He gave contact names for TOPS and OPEN, and indicated that ORRC is now doing packet frequency coordination. A copy of the message was given to the secretary and will be filed with these minutes.

There was a discussion concerning providing space in our newsletter for meeting notices for packet clubs in the area. It was agreed that under our probable new direction we should do this.

5. Equipment to be sold

We have 2 responses to our offer to sell to the current holder of these equipment. We received an indication that Doug, WB6VAC, was not interested in the NAPRA equipment presently at SEAW and SEA. Also, we received an offer from Peter, N7ENT, for these 2 sets of equipment: $50 and $35 respectively. His intention was to loan the equipment in place back to Doug, WB6VAC, for use at SEAW and SEA.

There was discussion concerning whether SEA and SEAW were going off the air anyway. Peter indicated that he needed more time to complete the list of equipment and collect offers from present holders. He made a motion that we table this item until next month, except for equipment which was brought to the meeting. John, N0NDO, seconded the motion. Peter agreed to complete the list and include offers from the present holders and make it available to the rest of the BOD before the next meeting. Motion passed.

Scott, N7FSP, had 2 items to consider. An Octopus board, which N6EQZ had made an offer of $15. John, KA7TTY, moved that we accept the offer. It was seconded by Peter, N7ENT. Passed. Scott also had an MFJ1274 but he felt he was not in a position to make an offer. At the insistence of the BOD, he was convinced to make a token offer of $1.00. John, N0NDO, moved that we table acceptance of the offer until next month so it can be considered with the other equipment. Seconded by Peter, WA7FUS. Passed.

6. Name for club newsletter

Bill, N7WRI, moved that since no other suggestion was made, that the newsletter name be changed to the Dedicated Link. John, N0NDO, seconded. Passed.

7. South Sound Cluster letters

Tadd presented copies of the letters he sent to the Radio Club of Tacoma and the Olympia Radio Club concerning operation of the TAC and OLY nodes to the secretary for filing with these minutes.

8. NPO status

Suggestion was made by those helping with this that we wait until after the new Bylaws were voted on. John, N0NDO, moved to table this until after the General meeting. Seconded by Peter, N7ENT. Passed.

III. New Business

1. N7QAN resigns

Ken, N7QAN submitted his resignation from the BOD - Peter, N7ENT, moved to accept his resignation. Seconded by John, N0NDO. Passed. John then moved that we table any motions to replace Ken until after the General meeting. Seconded by Peter, N7ENT. Passed

2. Return of 440 MICORs to the BEARS

submitted by John KA7TTY - NAPRA was loaned 2 MICOR 450 radios from the BEARS to be modified and used by NAPRA in the packet radio network. The modifications were never completed, and now NAPRA is getting out of the hardware business, so we need to give them back. John, N0NDO, moved that John, KA7TTY, deal with returning them to the BEARS. Seconded by Peter, N7ENT. Passed.

3. Select name for the club annual book

Tadd asked everyone to start thinking about this and send suggestions to Peter, N7ENT.

4. Return to Old Business for Treasurers report

Peter, WA7FUS, did not have a report prepared this time, but indicated that we had 18 new memberships since last month. He promised to have a report for the meeting in June.

5. Recess for Lunch

Bill, N7WRI, moved that we recess for lunch and resume following the General meeting. Seconded by John, N0NDO. Passed at about 11:45 AM.

Lunch Recess + General Meeting

6. Meeting Resumes

The meeting was resumed by Tadd, KA2DEW, at 2:49 PM following the General meeting. Attendees were:

Tadd Torborg	KA2DEW
PeterDahl	WA7FUS
John Painter	N0NDO
Bill Heaton	N7WRI
John MacDuff	KA7TTY
Chris Teague	WB8YPO
Brendon Keyport	N7UIE

It was noted that the new Bylaws were accepted by the general membership at the General meeting which just ended.

7. Appointment of positions

A. John, N0NDO, moved to appoint Tadd, KA2DEW, Chairman of the BOD. Seconded by Bill, N7WRI. Passed.

B. Peter, N7ENT, moved to appoint Peter, WA7FUS, as Treasurer. Seconded by Bill, N7WRI, seconded. Passed.

C. John, N0NDO, moved to appoint John, KA7TTY, as Recording Secretary. Seconded by Peter, N7ENT. Passed.

D. John, N0NDO, moved to appoint Peter, N7ENT, as Membership Secretary. Seconded by Bill, N7WRI. Passed.

E. Bill, N7WRI, moved that we create a position of Editor and that Peter, N7ENT, be appointed to that position. Seconded by John, KA7TTY. Passed.

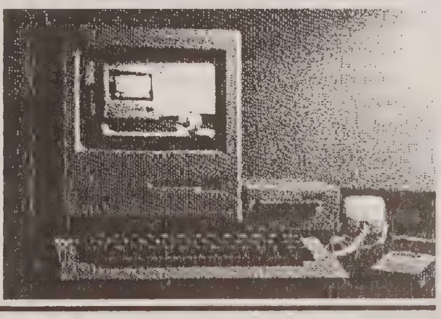
8. Non Profit Organization (NPO)

John, N0NDO, indicated that those helping him were holding off until the outcome of the Bylaws vote, and he would continue to pursue completing of this project, underwriting the costs himself at this point. He will have information available at the executive session of the BOD next month.

IV. Adjourn

The meeting was adjourned at about 3:00 PM.

—John, KA7TTY
Recording Secretary



NAPRA Bylaws

1. Name

a. The name of the organization is Northwest Amateur Packet Radio Association.
b. The organization is also known as NAPRA.
c. The Pacific Northwest is defined to include Idaho, Montana, Wyoming, Oregon, Washington and the bordering communities in British Columbia and Alberta.

2. Purpose

a. NAPRA's purposes are:
b. to promote packet networking and packet radio in the Pacific Northwest.
c. to publish the Dedicated Link.
d. to publish the Annual.
e. to provide support for emergency operations and emergency operation planning.

3. This Document

a. These are the Bylaws of NAPRA.
b. This document lays down the rules for operation of the Northwest Amateur Packet Radio Association. No other document may change or replace the rules set down in the Bylaws. The Bylaws may only be modified by the procedures described herein.
c. If there is a conflict between a portion of this document and state or federal laws then state and federal laws supersede that portion of this document.

4. Membership Standards and Practices (MS&P)

a. The MS&P is a document maintained by the board of directors of NAPRA which describes all club resolutions, policies and member responsibilities.
b. The MS&P is modified by a single vote of the board of directors, at a regularly scheduled board of directors meeting and by a simple majority of the attending board members.
c. There are no club policies besides those listed in the MS&P and these Bylaws.

5. Directors

a. There are six members of the Board of Directors hereafter called the board.
b. Members of the board are elected for two year terms.
c. Members of the board are known as Directors.
d. Directors are elected annually such that three directors' terms will end each year.

6. Officers and Appointed Positions

a. Office positions include Recording Secretary, Treasurer, Membership Secretary.
b. Appointed positions include board member alternates.
c. Other appointed positions may be created by the board. These positions may be filled by vote of the board. These appointments may be changed or dissolved by the board.
d. The MS&P must be changed if appointed positions are created or dissolved.
e. Only voting members may be appointed to a committee chairmanship, board member alternate or office position.
f. Directors may serve as officers or other appointed positions and appointees may serve multiple appointments.
g. temporary committees are not appointed positions.

7. Board Member Alternates

a. Each director may appoint an Alternate to represent him or her at board meetings in the event that the director is unable to attend.
b. The Alternate must be approved in advance by the board during a board meeting in which both the director presenting the candidate for Alternate and the Alternate must be present.
c. The candidate for Alternate must give consent.
d. The candidate for Alternate must not be a board member or an Alternate already.
e. Appointment of an alternate may be discontinued at any board meeting that the Alternate is not fullfilling his/her task of representing a director, at the request of the director the Alternate represents, at the request of the Alternate, or with a majority or tie vote of all the directors present.
f. The Alternate appointment is automatically cancelled when

- the Alternate is elected to a board position;
- the Alternate is no longer a voting member;
- the member the Alternate represents is no longer on the board;

g. The Alternate has full voting rights at board meetings in the absence of the director which he or she represents.
h. The Alternate must be in frequent communications with the director so that if the director is unable to appear at a board meeting the alternate will be able to take his or her place in discussion and during votes. Failure in this communications is a sign of poor alternate choice.

8. Membership

a. There are at least two grades of membership, associate and voting.
b. Associate membership is available to all.
c. Associate members receive the Dedicated Link and Annual.
e. Voting membership is available to all except those specifically excluded by the terms of Revocation.
f. Voting members receive all club benefits that Associate members receive in addition to those benefits described herein.
e. Voting members are invited to all quarterly board meetings by timely Dedicated Link issues or by specific invitation via packet radio.
f. Voting members participate in elections.
g. Voting members may petition for special meetings.
h. Associate members may upgrade to voting membership at any time by sending the membership secretary the difference between an annual associate membership and an annual voting membership, except in the case of a Revocation.
i. Membership is granted immediately upon an officer or director of the club receiving an application and funds.
j. More benefits and membership classes may be described in the MS&P.

9. Board of Directors Meetings

a. A Board of Directors Meeting, hereafter called a board meeting, is a physical gathering of the directors and officers.

b. A minimum of 4 directors (or alternates) must be present to open a board meeting. The board meetings must be announced via the NAPRA Dedicated Link or via packet mail to every voting member at least two weeks before the meeting.

c. The board meeting is chaired by one director, selected in advance.

d. The agenda of the board meetings will be created in advance of the board meeting. The chairman of the coming board meeting is responsible for coordinating the agenda creation process. The board members are expected to participate in the creation of the agenda and their input will reflect the concerns of the membership as expressed to them. A member may communicate with any director to recommend agenda items and proposed resolutions. The director is responsible for communicating this information to the board chair.

e. If a quorum of directors is not available to start the meeting a new meeting must be scheduled and new announcements must be sent.

f. A quorum of directors is defined to be four directors.

g. If a meeting must be postponed a new meeting must be scheduled and new announcements must be sent.

h. Board meeting locations are chosen such that travel time for all members in the Pacific Northwest is minimized without playing favoritism to any metropolitan area. The meeting must be in a location central to the Pacific Northwest.

i. Board meetings may be attended by voting members or those given special dispensation by the board or any person approved by the MS&P.

f. Board meetings must be held 4 times per year. The 4 quarterly board meetings are held as close as possible to the second weekend of January, April, July and October. Additional board meetings may be called by the board with a vote of 4 directors. A board meeting is required in order to:

- spend club funds.
- discipline a member;
- change the appointment for chairman of any committee.
- re-assignment or assignment of a board member alternate;
- change the Bylaws or MS&P;
- form or disband any committee.

k. Actions which must occur at the board meeting include the reading of a current NAPRA treasury report. This will be recorded in the minutes and printed in the subsequent NAPRA Dedicated Link.

l. Voting members who attend a board meeting may participate in discussion.

10. General Meetings

a. NAPRA General meetings may be called by any member.

b. The meetings must be scheduled in advance so that they may be published in the Dedicated Link.

c. Regular scheduled meetings on a monthly or quarterly basis are recommended. Minutes need not be taken but notes should be taken so regular reports may be presented to the membership via the Dedicated Link or via reports at the board meetings.

d. Conclusions and resolutions from general meetings may be presented at board meetings to be included in the MS&P if the board so chooses.

e. NAPRA documents, products and projects may be shown or created at general meetings.

f. The format of general meetings is open but recommendations for format are presented in the MS&P.

g. Club officers and directors are requested to attend as many of the general meetings as possible and to host general meetings in areas where meetings do not occur.

h. NAPRA general meetings should not be in competition with other packet clubs.

i. At NAPRA general meetings funds might be raised for packet projects but those projects and the funds involved must be maintained by an individual or by an entity separate from NAPRA. If NAPRA is a hindrance to this procedure it is recommended that the group that meets at the particular general meeting form it's own separate club. NAPRA will lend whatever documentation, leadership, or advisory assistance it may to help this procedure.

11. Special Meetings

a. 20% of the membership may call a special meeting of the membership by petition.

b. The petition is presented by certified mail or in hand to the recording secretary, or if the recording secretary is unavailable, to the current Board chair.

c. The recipient of the petition is responsible for the verification of the petitions and for distribution, to the other directors.

d. After verification that the petition meets the qualification for calling a special meeting the meeting shall be scheduled at the city of the last board meeting within 90 days of receipt of the petition and no sooner than 30 days after notices to members are mailed.

e. Notices to all members must be mailed within thirty days of the receipt of the petition. The notice shall consist of the text of the petition in the form of an agenda and only items on the agenda will be eligible to be voted on.

f. Special meetings may also be called by a vote of four of the directors if justified by the Disolution clause, over the phone or in person, in which case the chairman of the board, or the recording secratary is notified. The directors who call the meeting, in this case, create the agenda.

g. The meeting will be called to order by the current chairman of the board. The current club recording secretary shall record minutes of the meeting. These minutes will be published in the next Dedicated Link.

h. A quorum will be 20% of the membership.

i. The remaining directors will have no special powers at the meeting.

j. The meeting will follow strict interpretation of Roberts Rules of Order, revised, except where contradicted by the Bylaws. A parliamentarian should be on hand during this meeting.

k. Special meetings may be used to:

- make immediate changes to the Bylaws,
- make immediate changes to the MS&P,
- elect or appoint new officers and directors,
- spend club funds,
- remove officers or directors,
- dissolve the club,
- approve documentation,
- or for assignment or revocation of a member's privileges.

12. Removal of a Person From Office or Revocation of Votiong Membership Privileges

a. A petition for removal of a person from office, directorship or voting membership must be submitted in writing to the board with a minimum of four signatures of voting members.
b. The petition must be presented at least two weeks before a quarterly board meeting in which it is to be acted upon. The board must vote on the petition at a quarterly board meeting.
c. The document will be kept in the club archives unless removed and expunged at a later board meeting.
d. This issue is presented in the minutes in the Dedicated Link so that it may be reviewed by all the membership and commented on before the following quarterly board meeting.
e. This person being removed is held as a removal-pending member for one quarter and then is reviewed at the following quarterly board meeting.
f. A person removed from membership is not eligible for voting membership unless the privilege is restored by an act of the board at a later date.

13. Elections

a. A mailed ballot is used to elect directors.
b. Elections are held after the October board meeting.
c. Immediately after the October board meeting attendance of each member, over the previous year's board meetings, are tallied. Any voting member who is paid up for two years from the end of October of the current year, who has attended half of the year's board meetings, and who are not already in the middle of a two year term are automatically nominated.
d. The nominees are informed via packet and have two weeks to request that they not be listed on the ballet.
e. The membership may request, by petition, that additional voting members are placed on the ballet. The petition must include the minimum of 5% of members or 700 signatures, whichever is less, and must be presented to the board chairman or recording secretary within two weeks after the October board meeting.
f. This ballot is sent to all NAPRA voting members complete with a self addressed stamped envelope. The envelope also has a return address label with a note stating that the return address must be filled in for the ballot to be counted.
g. The ballot includes instructions that the voting member should order all of the listed people in ascending order, 1 for first choice, 2 for second choice. This way the results will still be meaningful if one or more nominated members are unavailable to fill the positions.
h. The ballots are mailed to the club POBox and then counted by the recording secretary or one of the directors whose term is not expiring this year.
i. The ballots must be mailed out to all NAPRA voting members between 14 and 30 days after the October board meeting. They must be returned to the club mailing address within five weeks of the mailing. Results are included in the Dedicated Link or are mailed out separately to all members to arrive at least a week before the winter board meeting.
j. The results include the following statistics:
- total number of ballots sent;
- total number of ballots returned.;
- list of all nominees;
- list of the new directors;
- and a list of nominees who abstained but who had a higher vote than the selected directors.

k. If the board is not filled to six directors by this process then a director may be chosen by the existing board from those voting members who were previously directors and who ended their term as director in good standing. See Grounds for Dissolution.

14. Director Responsibilities

a. Directors must attend the quarterly board meetings or obtain an alternate to handle meetings the director cannot attend. Failing to do so twice in a single year is grounds for removal from office. Directors or their alternates are also obligated to attend additional board meetings called by verbal agreement by any four of the directors.
b. Directors represent NAPRA and are obligated to carry out the NAPRA Bylaws and MS&P in regards to dealings with other members and non-members.
c. The board as a body is responsible for seeing that the NAPRA Dedicated Link and the NAPRA Annual are published on time. As these are the instruments of the club and as the NAPRA Dedicated Link is the means by which the financial operations of the club are published to the membership, the paying membership has the right to expect these documents.

15. Filling Spots on the Board Due to Director Resignation

a. If a director resigns or is otherwise no longer available to fulfill the remainder of his or her term a new director is selected to serve until the next election.
b. The new director is selected from those voting members who were previously directors and who ended their term as director in good standing.

16. Dues & Club Treasury

a. Dues are paid to the Membership Secretary or his designee.
b. All funds are then forwarded to the Treasurer.
c. Dollar values of dues is set in the NAPRA MS&P but the dues level for a Voting member is $25 or greater.
d. Dues are not refundable
e. Dues may only be used to fund:
- operating expenses for the club;
- one night's stay, per meeting, in a budget motel local to the meeting site for each director or officer that needs to travel in excess of three hours to the board meeting, the benefit per individual not to exceed four nights stay for the entire year and this amount not to compromise the ability of the club to publish the Dedicated Link and Annual.
- development costs for club products that facilitate network growth;
- documentation in the form of an Annual and Dedicated Link;
- documentation in the form of free technical documentation distributed for the benefit of packet networking;
- documentation in the form of free promotional literature on NAPRA and on packet networking;

f. Funds may not be spent on hardware which might otherwise be purchased by a member;
g. The purpose of NAPRA funds is to promote packet networking, not to own packet networking;

h. Items donated to the club must eventually be sold or donated to support youth activities in the Pacific Northwest and in the country from which the donation was received. Such transactions must be documented in the Dedicated Link.
i. Equipment must not be owned by the club when it could instead be owned and operated by a member.
j. Items may be obtained or accepted as donation by the club for the purpose of testing new networking technologies not already implemented in the Pacific Northwest.
k. Items may be accepted as donation by the club and kept by the club where those items are not used for packet networking but are of value in the documentation process and in the operating of the club. The finaly disposition of such items will be as in 16h, above.

17. Network Maps

a. Network maps must be maintained and are presented in the Dedicated Link.
b. The maps must consist of at least the callsign, name, location (at least relative), user access frequencies for AX.25 (if any) and backbone connectivity for listed nodes.
c. Listed nodes include all point to point connected general access nodes in the Pacific Northwest.
d. A general access node is a node through which any AX.25 equipped station is able to pass traffic, in real time.
e. Nodes that do not participate in a general access network are marked as such or are not shown.
f. The maps may show more information, as described in the MS&P.

18. NAPRA Dedicated Link

a. The NAPRA Dedicated Link is published within 60 days after the quarterly board meeting.
b. The Dedicated Link is fully described in the MS&P but as a minimum must include:
- the minutes of the board meeting (including the treasurer's report);
- the network maps;
- membership roster;
- any submitted club bulletins from packet user groups and special interest groups that reflect packet activity in the Pacific Northwest during the preceding quarter.

c. The board may delegate the task of production and mailing of the Dedicated Link but maintain the responsibility.
d. The fall edition of the Dedicated Link will include whatever results that are available from the annual elections. This may include the nominees or the final results.

19. NAPRA Annual

a. The NAPRA Annual is the current statement of NAPRA packet network involvement. This includes user information for usage of general access network hardware as well as lessons in the technology needed to fulfill the goals of NAPRA as stated in these Bylaws.
b. The Annual is delivered annually to each and every paid member of the club.
c. The Annual should be updated at least once annually to reflect the current state of networking technology promoted by NAPRA.
d. The Annual is the responsibility of all of the directors. The board may delegate the task of production and mailing of the Annual but maintain the responsibility.

20. Changes to the Bylaws

Changes to the Bylaws may only be made by the following process:

a. At a regularly scheduled quarterly board meeting a proposal for a change is submitted in printed or typed form (8 copies) to each of the Directors, to the editor and to the recording secretary. The item must be presented in person by a NAPRA voting member.
b. The format of the submission is in bulleted sections. The following sections must be included: TITLE, PRESENTED, BY, BRIEF, SPECIFICS, PURPOSE. The page is headed with "Bylaws Change Request". TITLE is followed by one line which identifies the change request. PRESENTED is followed by the date of the board meeting. BY is followed by the name and callsign of the author. BRIEF is followed by a single paragraph description of the change. SPECIFICS is followed by a paragraph by paragraph description of the changes including reference section and paragraph numbers. PURPOSE is followed by a justification for the change. A sample change is available from the club.
c. The proposed change is entered into the minutes of the board meeting at which it is presented. Discussion may follow. No vote is taken at this time.
d. At the following board meeting the change is brought up as old business and after discussion is either ratified or not. No change is made if a tie occurs.
e. If a change is ratified then the new copy of the Bylaws is printed in the following Dedicated Link in its entirety.

21. Changes to MS&P

a. Changes to the MS&P may be made at a single board meeting with the vote of a majority of the directors present. If a tie occurs then no action is taken.

22. Grounds for Dissolution

a. If the board doesn't make reasonable effort to hold 2 board meetings before the end of July then a special meeting must be called within 90 days. If the special meeting is not able to be called to order, due to mismanagement or lack of quorum, the club must be dissolved.
b. If during the year, four board meetings are not called then all six directors must be up for re-election.
c. If the board doesn't make reasonable effort to get the Dedicated Link, in at least it's minimum form, mailed to the membership in time, then a special meeting must be called within 90 days. If the meeting is not able to be called to order, due to mismanagement or lack of quorum, the club must be dissolved.
d. If the club is unable to hold elections or it was not possible to fill all board vacancies in a timely manner then the club must be dissolved.

23. Dissolution of the Club

a. In the event of dissolution: After paying out any pending bills the treasurer is directed to write a check for the remainder of the club treasury to the American Cancer Society and to close all club bank accounts.

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SERVERs Accessible From Dedicated Link Supported Nodes in the Northwest.

The following is a list of PBBS's that can be reached from the existing contiguous network. Some paths have nodes that are not participating in any point to point dedicated linking. I have tried to provide the best path from inside the existing contiguous network. Please keep in mind that in packet radio, change is the rule (much like other branches of amateur radio).

Note: Do NOT forward 3rd party traffic long haul. It might be nice to send traffic that is destined for a PBBS direct to that PBBS but there is no reason to do long haul forwarding of bulletins and traffic that you can't route to it's final destination!

The first nodename in each connect path is a network port that is propagated. Other nodenames may be PBBS, non dedicated link connected nodes or ports which are not visible outside of a local node stack.

Class

This indicates the class of hookup the server has to the network.

Class 1:	wireline or one dedicated link from dedicated link connected node
Class 2:	multi hop from dedicated link connected node via non 2meter links
Class 3:	accessible non-2m link from network *not* supported by dedicated links
Class 4:	direct connect on 2m or HF from dedicated link connected node
Class 5:	one 2m hop and at least one more hop on any band from dedicated link connected node

PBBS servers

call & node name	local node	type	class	node	location
ah6aa:COEBBS	COEBBS	aa4re	3	y	coeur d'alene, id
ka7ae:KFBBS	KFL	msys	3	y	klamath falls, or
wa7ahn	#SUT2	msys	3	y	sutherlin, or
wa7bhh:#MBBHH	#WETAC	w0rli	3	y	tacoma, wa
kb7cfd:BOIBBS	HOME	aa4re	3	y	homedale, id
kb7cnn:CNNMB	AMSAT	w0rli	3	y	tacoma, wa
kb7dbd:DBD_MB	SANDY	w0rli	3	y	sandy, or
wb7dch:MBDCH	SEANEW	w0rli	3	y	enemclaw, wa
ka0dfn:ASHBOX	ASH	msys	3	y	ashland, or
wb7dow:GEMBBS	GEMBBS	aa4re	3	y	meridian, id
n7dxt:DXTMB	EUGENE	w0rli	3	y	eugene, or
w7gci:#MBGCI	#LK220	w0rli	3	y	lakewood, wa
n7hpx:BBS	NAMPA	aa4re	3	y	nampa, id
kg7hq:BBSHQ	SEDRO	msys	3	y	sedro-woolley, wa
kb7kbt:NPDXMB	NPDX	w0rli	3	y	portland, or
n7kqb:CDABBS	HDN	msys	3	y	hayden lake, id
w0lvj:WABBS	GRAHAM	w0rli	3	y	graham, wa
n7okg:MTHBBS	MTH	aa4re	3	y	mountain home, id
n7qan:QANBBS	BBSQAN	msys	3	y	mt vernon, wa
wb7qeu:QEUBBS	YELM	w0rli	3	y	yelm, wa
w0rli:RLIMB	WLINN	w0rli	3	y	west linn, or
wa7sjn:SJNMB	KALAMA	w0rli	3	y	kalama, wa
wb7vms:VMSMB	MURPHY	w0rli	3	y	murphy, or
ve6vvc:ABBCGV	ABFCGV	fbb	3	y	calgary, ab

DxClusters

TCP/IP gateways/servers

Other

ke7le-5:CONTAC	NOTAC	chat	3	y	tacoma, wa
w0rli:WLINN		chat,qth	3	y	west linn, or
wb7vms:MURPHY		chat,qth	3	y	murphy, or
kb7zd:CHAT	TBL	chat	3	y	boise, id

Notes:

This is a first try and is missing lots of good information. There are several TCP/IP stations that are accessible from the network. There are also general access TCP/IP backbones which can be connected to and through from AX.25 and the TheNET packet network. These systems and links will be documented in the next issue. We are also working out the '*class*' definitions.

Some of the BBSs that are documented in this magazine are using node names which are not obvious. For the sake of packeteer enthusiasm and ease of use please name your BBSs and servers with the naming format: yyyCCC where yyy is the server's function and CCC is the last 2 or 3 characters in your callsign. Thus KA7EHK's DxCluster would be DXEHK and KA2DEW's BBS would be BBSDEW. This also lets these services show up in a decent order in a TheNET nodes list.

Please send new information as well as comments to KA7EHK @ WG7J.OR.

TheNET Sysop's Help Sheet

W = wide coverage general access[3]
L = local user access port[4]
F = flat - trunk with hidden transmitters[3]
P = point to point trunk

Parameter Function v2.08		W[3]	L[4]	F[3]	P
1	Minimum Quality For Auto Update1	50	50	50	50
2	HDLC Channel Quality	50	0	82[5]	0[1]
3	RS-232 Channel Quality	203	203	82[5]	203
4	Obsolescence Count Init Value	3	3	3	3
5	Obsolescence Count Min For Broadcast	4	4	1	1
6	Nodes Broadcast Interval (sec)	1800	1800	1800	1800
7	FRACK (sec)	8	2	3	1
8	MAXframe	1	1	1	1
9	Link RETRIES	6	10	6	10
10	Digipeating	0	0	0	0
11	Validate Callsigns 0=no; 1=yes	0	1	1	1
12	Host Mode Connects	0	0	0	0
13	TxDELAY (10ms)	35	35	35	35[2]
14	Broadcast Via b0=radio; b1=RS-232	3	2	3	3
15	Pound Node Propagate 0=no; 1=yes	0	0	0	0
16	Connect Command Enable 0=no; 1=yes	1	1	1	0
EPROM parameters					
17	Destination List Length	100	100	100	100
18	Time-to-live Initializer (hops)	7	7	7	7
19	Transport Time-out (sec)	200	200	200	200
20	Transport RETRIES	2	2	2	2
21	Transport ACK Delay (sec)	1	1	1	1
22	Transport Busy Delay (sec)	180	180	180	180
23	Transport Window Size	2	2	2	2
24	Congestion Control Threshold	4	4	4	4
25	No-Activity Time-out (sec)	7200	7200	300	300
26	P-persistence (see text)	64	255	64	255
27	Slot Time (10ms)	35	1	35	1
28	Link RESPTIME [t2 time-out] (10ms)	100	30	50	20
29	Link T3 Time-out [CHECK] (10ms)	65000	65000	65000	65000
30	Station ID 0=msgs;1=after; 2=always	1	2	0	0
31	CQ Broadcasts 0=no; 1=yes	1	1	0	0
32	Heard List Length	20	20	20	20
33	Full Duplex 0=no; 1=yes	0	0	0	0

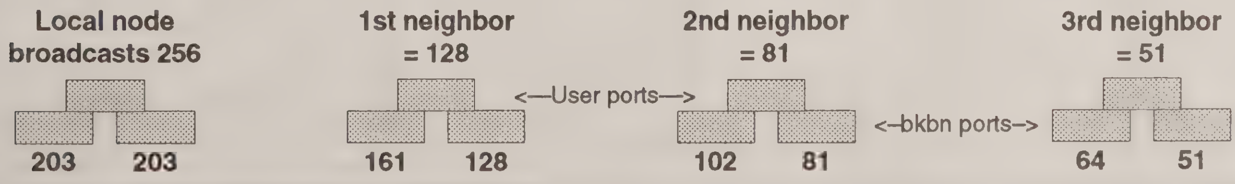
Parameter Function v2.10		W[3]	L[4]	F[3]	P
1	Minimum Quality For Auto Update1	50	50	50	50
2	HDLC Channel Quality	50	0	82[5]	0[1]
3	RS-232 Channel Quality	203	203	82[5]	203
4	Obsolescence Count Init Value	3	3	3	3
5	Obsolescence Count Min For Broadcast	4	4	1	1
6	Nodes Broadcast Interval (sec)	1800	1800	1800	1800
7	FRACK (sec)	8	2	3	1
8	MAXframe	1	1	1	1
9	Link RETRIES	6	10	6	10
10	Validate Callsigns 0=no; 1=yes	0	1	1	1
11	Host Mode Connects	0	0	0	0
12	TXDelay (10ms)	35	35	35	35[2]
13	Broadcast Via b0=radio; b1=RS-232	3	2	3	3
14	Pound Node Propagate 0=no; 1=yes	0	0	0	0
15	Connect Command Enable 0=no; 1=yes	1	1	1	0
16	Destination List Length	100	100	100	100
17	Time-to-live Initializer (hops)	7	7	7	7
18	Transport Time-out (sec)	200	200	200	200
19	Transport RETRIES	2	2	2	2
20	Transport ACK Delay (sec)	1	1	1	1
21	Transport Busy Delay (sec)	180	180	180	180
22	Transport Window Size	2	2	2	2
23	Congestion Control Threshold	4	4	4	4
EPROM parameters					
24	No-Activity Time-out (sec)	7200	7200	300	300
25	P-persistence (see text)	64	255	64	255
26	Slot Time (10ms)	35	1	35	1
27	Link RESPTIME [t2 time-out] (10ms)	100	30	50	20
28	Link T3 Time-out [CHECK] (10ms)	65000	65000	65000	65000
29	Station ID 0=msgs;1=after; 2=always	1	2	0	0
30	CQ Broadcasts 0=no; 1=yes	1	1	0	0
31	Full Duplex 0=no; 1=yes	0	0	0	0
32	Telemetry unit only				
33	Telemetry unit only				

Parameter Function v1.1 & 1.16		W[3]	L[4]	F[3]	P
1	Destination List Length	100	100	100	100
2	Minimum Quality For Auto Update[1]	50	50	50	50
3	HDLC Channel Quality	50	0	82[5]	0[1]
4	RS-232 Channel Quality	203	203	82[5]	203
5	Obsolescence Count Init Value	3	3	3	3
6	Obsolescence Count Min For Broadcast	4	4	1	1
7	Nodes Broadcast Interval (sec)	1800	1800	1800	1800
8	Time-to-live Initializer (hops)	7	7	7	7
9	Transport Time-out (sec)	200	200	200	200
10	Transport RETRIES	2	2	2	2
11	Transport ACK Delay (sec)	1	1	1	1
12	Transport Busy Delay (sec)	180	180	180	180
13	Transport Window Size	2	2	2	2
14	Congestion Control Threshold	4	4	4	4
15	No-Activity Time-out (sec)	7200	7200	300	300
16	P-persistence (see text)	64	255	64	255
17	Slot Time (10ms)	35	1	35	1
18	FRACK (sec)	8	2	3	1
19	MAXframe	1	1	1	1
20	Link RETRIES	6	10	6	10
21	Link RESPTIME [t2 time-out] (10ms)	100	30	50	20
22	Link T3 Time-out [CHECK] (10ms)	65000	65000	65000	65000
23	Digipeating 0=no; 1=yes	0	0	0	0
24	Validate Callsigns 0=no; 1=yes	0	1	1	1
25	Station ID 0=msgs;1=after; 2=always	1	2	0	0
26	CQ Broadcasts 0=no; 1=yes	1	1	0	0

1. Route Qualities for neighbors are locked in at 203. The default is left at 0.
2. TXDelay for point to point links should be optimized to 5 greater (50ms) than the lowest that works.
3. Parameters for flat and wide are given here because interface with existing, older design systems will occur until all systems convert over to point to point link design.
4. A port may only use LAN parameters if there are no other servers or nodes within detection range.
5. This value may have to be adjusted upwards. The point of this parameter is to make it so the visible nodes at the neighbor node's stack will show at the local user port and vice versa. Further propagation of nodes heard over non point to point backbones will lend to confusion and frustration.

This information is NAPRA's recommendations as of time of publication. Nodes using TheNet "work alike" softwares should match the effective values of these parms as closely as possible.

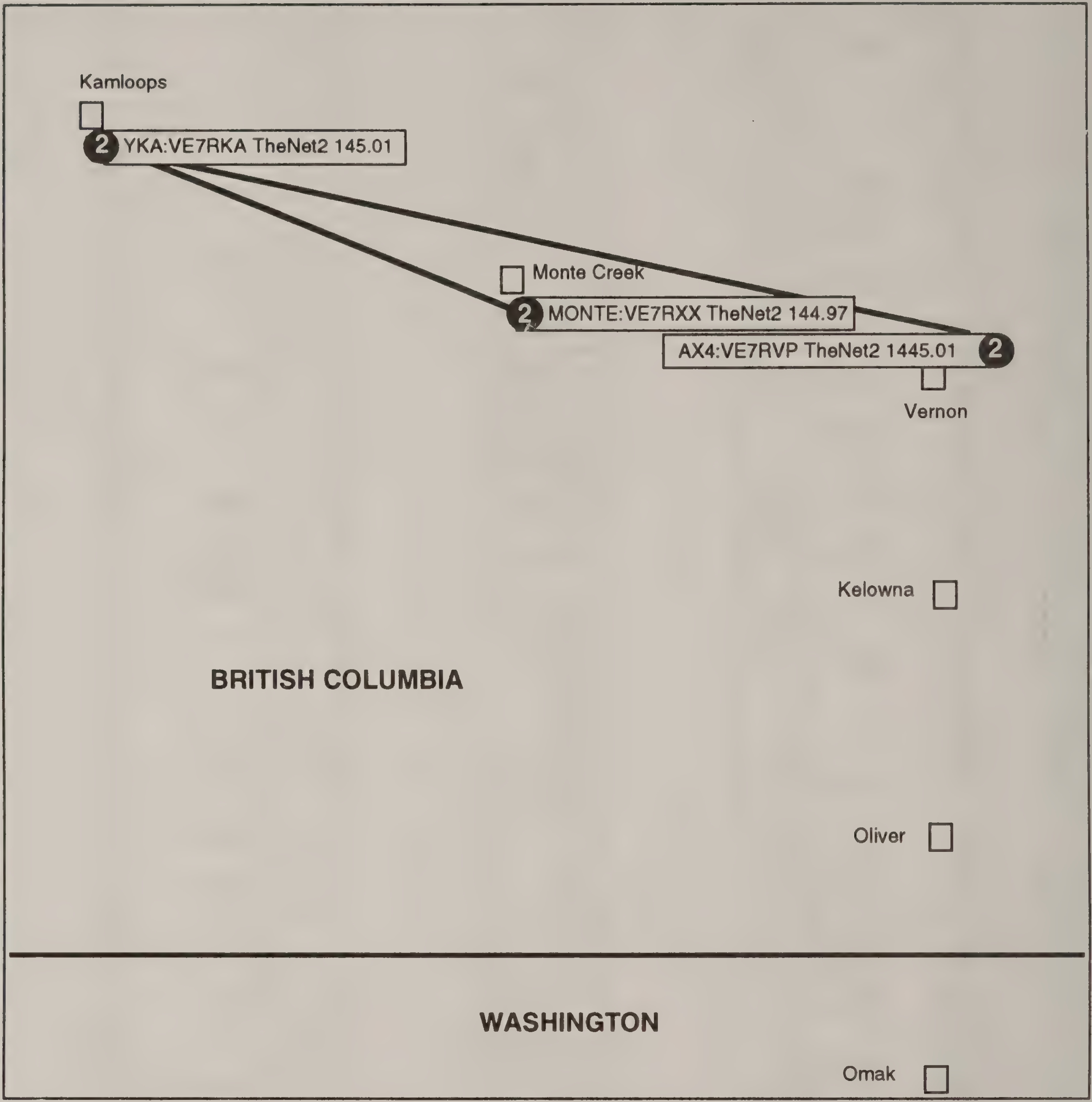
This drawing represents the node quality value for a single node as it propagates through several node hops.



Membership Roster as of 09/92 - 130 members who expire 06/92 or later

callsign	*first name*	*last*	*city*	*state*	*home BBS*	*exp*	*mem*
WB7AAE	Ronald	Verschuyl	Woodinville	WA		9304	V
N7APY	Myles	Gilbert	Renton	WA	N7HFZ	9211	V
KG7AS	Brent	Babcock	Pacific	WA		9207	V
N7AXH	Francis	Anderson	Federal Way	WA		9306	V
NH6AY	Lanny	Caudill	Kent	WA		9305	V
W7AZU	Sperry	Goodman	Kent	WA		9306	V
KB7B	Andy	Madsen	Seattle	WA		9301	V
KF7BB	Henry	Pfister	Seattle	WA	N7ENT	9209	V
WA7BBJ	Gary	Lewis	Monroe	WA	N7ILJ	9305	V
N7CAK	Pat & Cal	Morgan	Auburn	WA	N6EQZ	9212	V
N7CVW	Bob	Cline	Seattle	WA		9310	V
NU7D	Randy	Greeley	Longview	WA	WA7SJN	9207	V
KA7DAR	George	McCall	Orting	WA	N7ENT	9208	V
KA2DEW	Tadd	Torborg	Lynnwood	WA	N7ILJ	9302	V
W7DJQ	William	Fisher	Brewster	WA		9207	V
W7DK	Radio Club	of Tacoma	Tacoma	WA		9309	S
KG7DL	Lawrence	Earl	Poulsbo	WA	N7ENT	9304	V
K7DPO	Tom	McKenna	Kirkland	WA		9211	V
KL7DTR	Leslie	Kometz	Tacoma	WA	N7HFZ	9302	V
N7DUO	Conrad	Thompson	Bellevue	WA	N7DUO	9211	V
KB7DZ	Dennis	Goodwin	Port Orchard	WA		9206	V
N7EBB	Randy	Robinson	Riverside	WA	N7HHU	9305	V
KA7EBO	Donald	Crook	Issaquah	WA		9302	V
AA6ED	Bill	Bytheway	Renton	WA	AA6ED	9207	V
N7ENT	Peter	Kallio	Port Orchard	WA	N7ENT	9302	V
N7EP	Earl	Palmer	Seattle	WA		9306	V
N7ETN	George	McDonald	Joseph	OR	WB7DOW	9309	S
WA4FIB	Jack	Brindle	Bothell	WA		9211	V
N7FIG	Dave	Fischer	Vancouver	WA	W0RLI	9207	V
KC7FN	Michael	Greene	Bremerton	WA	N7ENT	9211	V
N7FSP	Scott	Cronk	Seattle	WA		9211	V
WA7FUS	Peter	Dahl	Brier	WA		9206	V
N7FWE	Tom	Jacobs	Seattle	WA		9306	V
N7FYA	Ron	McCallister	Tacoma	WA		9207	V
KB7GBQ	Timothy	Osburn	Issaquah	WA	N7ENT	9208	V
N8GNJ	Steve	Stroh	Woodinville	WA		9207	V
KA7GVY	Kevin	Faler	Pullman	WA		9309	S
N7GWC	Gary	Breivik	Yelm	WA	KB7QEU	9309	V
KT7H	Tad	Cook	Seattle	WA	N7DUO	9210	V
KD7H	Robert	Gregory	Omak	WA	N7HHU	9211	V
N7HFZ	Steve	Hazelett	North Bend	WA	N7HFZ	9209	V
KB7HII	John	Ary	Port Angeles	WA	VE7DIE	9208	V
KB6HPC	Jesse	Schaefer	Seattle	WA	N7ENT	9211	V
WA7HRA	Bob	Hart	Hoodsport	WA	WA7HRA	9206	V
AA7IA	Dave	Kleinschmidt	Bremerton	WA	N7ENT	9212	V
N7IHS	Jack	Grimmett	Issaquah	WA		9209	V
N7ILJ	Steven D.	Wheeler	Mountlake Terr	WA	N7ILJ	9208	V
N7IPJ	Michael	Sinnett	Kingston	WA	W0LVJ	9309	V
KA7IQQ	William	Antes	Tacoma	WA		9306	V
W7IQV	Howard	Smith	Redmond	WA		9305	V
K7IRO	Lee	Whitney	Friday Harbor	WA	VE7VBB	9304	V
KI6IS	Fred	Allen	Auburn	WA		9209	V
KE7IT	A. L.	Fluesmeier	Coupeville	WA	N7ILJ	9311	V
WR5J	Curt	Block	Redmond	WA		9305	V
WA2JQW	Ken	Moak	Springfield	OH		9306	V
W7JWP	Arnold	Larson	Bothell	WA	N7ILJ	9212	V
W7KCJ	Richard	Anderson	Port Townsend	WA	N7ILJ	9302	V
N7KIO	William	Florey	Auburn	WA	N7HFZ	9303	V
N7KWJ	Virgil	Carrell	Olympia	WA		9210	V
W7KWS	Bob	Fuller	Issaquah	WA		9305	V
N7KZZ	Mike	Faire	Monroe	WA		9308	V
KB6LE	George	Lanning	Olympia	WA	WB7QEU	9310	S
W7MCU	Len	Westbo	Auburn	WA		9309	S
W7MGG	Gary	Whitinger	Lynnwood	WA		9209	V

callsign	*first name*	*last*	*city*	*state*	*home BBS*	*exp*	*mem*
N7MIQ	William	Treverton	Bellevue	WA		9210	V
W7MRT	C. L.	Richards	Issaquah	WA		9304	V
W7MSR	John	McAllister	Tacoma	WA		9305	V
N7MYO	David	Wright	Woodinville	WA		9302	V
W7MZQ	Hal	Cleaver	Auburn	WA		9206	V
NM7N	Mary Lou	Brown	Anacortes	WA		9306	V
WB7NDO	Thomas	Powell	Maple Valley	WA		9302	V
N0NDO	John	Painter	Federal Way	WA		9302	V
N7NEI	Ronald	Jackson	Seattle	WA	N7ENT	9211	V
KB7NGZ	Ian	Groves	Port Townsend	WA		9309	S
N7NKJ	Don	Werts	Tukwila	WA		9209	V
KG6NL	Jim	Nissen	Allyn	WA	N6EQZ	9301	V
KD7NM	Bob	Donnell	Seattle	WA		9306	V
WA7NUU	Bob	Calkins	Lynnwood	WA	N7IIJ	9208	V
N7OBE	Robert	Fox	Grapeview	WA		9302	V
N6OBY	Mark	McClain	Redmond	WA		9302	V
N7OIP	Jim	Goodwin	Port Orchard	WA	N7HFZ	9302	V
W7OIV	Bill	Lawson	Puyallup	WA		9207	V
WB7OSE	Michael	Lewis	Bothell	WA	N7ENT	9210	V
N7OTG	Tom	Quinn	Eatonville	WA		9207	V
N7OVE	Paul	Bean	Lynnwood	WA		9302	V
WB7OXJ	Doyle	Wilcox, Jr	Seattle	WA		9212	V
K7PJR	Charles	Shearer	Gig Harbor	WA	N7HFZ	9210	V
N7POR	Jack	McGinnis	Seattle	WA		9305	V
N7QAN	Ken	Dickinson	Mt. Vernon	WA	N7QAN	9305	V
WB7QEU	Donald	Hill	Yelm	WA	WB7QEU	9310	S
N7QHW	Shirley	Murphy	Tacoma	WA	W0LVJ	9306	V
W7QLW	Ernest	Behrle	Bremerton	WA		9211	V
K7QNA	Walter	DeLashmutt	Oak Harbor	WA	N7HFZ	9303	V
N7QNM	Clay	Jackson	Redmond	WA		9212	V
WV7R	Allan	Kush	Kirkland	WA		9210	V
N7RHM	Howard	Young	Tacoma	WA		9211	V
N7RIG	Richard	Ball	Seattle	WA		9302	V
KC7RN	Ann	Judson	Kirkland	WA	N7ENT	9212	V
K7RNZ	Richard	Miles	Bremerton	WA	N7ENT	9208	V
K7RSD	Frank	McJunkins	Seattle	WA		9302	V
N6RY	Terry	Conboy	Renton	WA		9303	V
AK7S	Bob	Harlan	Renton	WA	N7HFZ	9206	V
N7SAU	Lee	Mitchell	Seattle	WA		9304	V
WA7SJN	Bill	Nelson	Kalama	WA	WA7SJN	9207	V
N7SPM	Raymond	Bonnell	Seattle	WA		9305	V
KA6SPY	Jack	Horner	Friday Harbor	WA	VE7VBB	9306	V
N7SYO	Henri	Andersen	Fall City	WA		9302	V
WA7TAI	Gene	Jacobson	Kirkland	WA		9306	V
K7TPN	Dick	Phelps	Port Townsend	WA	N7IIJ	9309	V
KA7TTY	John	MacDuff	Issaquah	WA		9212	V
NC7U	Jerry	Repine	Bremerton	WA	N7ENT	9302	V
WA7UGB	Mark	Richey	Camano Island	WA		9211	V
N7UIE	Brendan	Keyport	Tacoma	WA	KB7CNN	9306	V
W7UKS	Cliff	Scheppler	Tacoma	WA		9210	V
WB7USL	Larry	Babcock	Seattle	WA		9306	V
VE7VBB	VARPA		Victoria	BC		9304	V
KA7VDY	Tony	Slawinski	Everett	WA	N7IIJ	9208	V
N7VIH	Dale	Jensrud	Kent	WA		9302	V
K7VTR	Walter	Johnson	Auburn	WA		9207	V
NX7W	Nick	Bender	Montesano	WA	N7LOL	9308	V
W7WFS	Lee	Buse	Bellevue	WA		9206	V
N7WRI	William	Heaton	Federal Way	WA		9304	V
WA7YAM	Terry	Balser	Kent	WA	N7HFZ	9207	V
K7YLO	Ed	Vaughn	Bend	OR	W7DCR	9309	S
W7YLV	Al	Dawson	Port Angeles	WA	VE7DIE	9206	V
WB8YPO	Chris	Teague	Federal Way	WA		9211	V
WA7YTN	Henry	Bogerman	Seattle	WA		9309	S
KA7ZEM	Jerry	Moseley	Port Townsend	WA	N7IIJ	9211	V
WA7ZWD	Phil	Bondurant	Kent	WA		9206	V


Kamloops
2 YKA:VE7RKA TheNet2 145.01
Monte Creek
2 MONTE:VE7RXX TheNet2 144.97
AX4:VE7RVP TheNet2 1445.01 2
Vernon
Kelowna
BRITISH COLUMBIA
Oliver
WASHINGTON
Omak

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PNW BACKBONE PACKET SYSTEM MAP

Southeasern British Columbia

☐ Packetville (City/town)

point-point link

hidden-transmitter-free network

non-user-frequency network

low reliability link

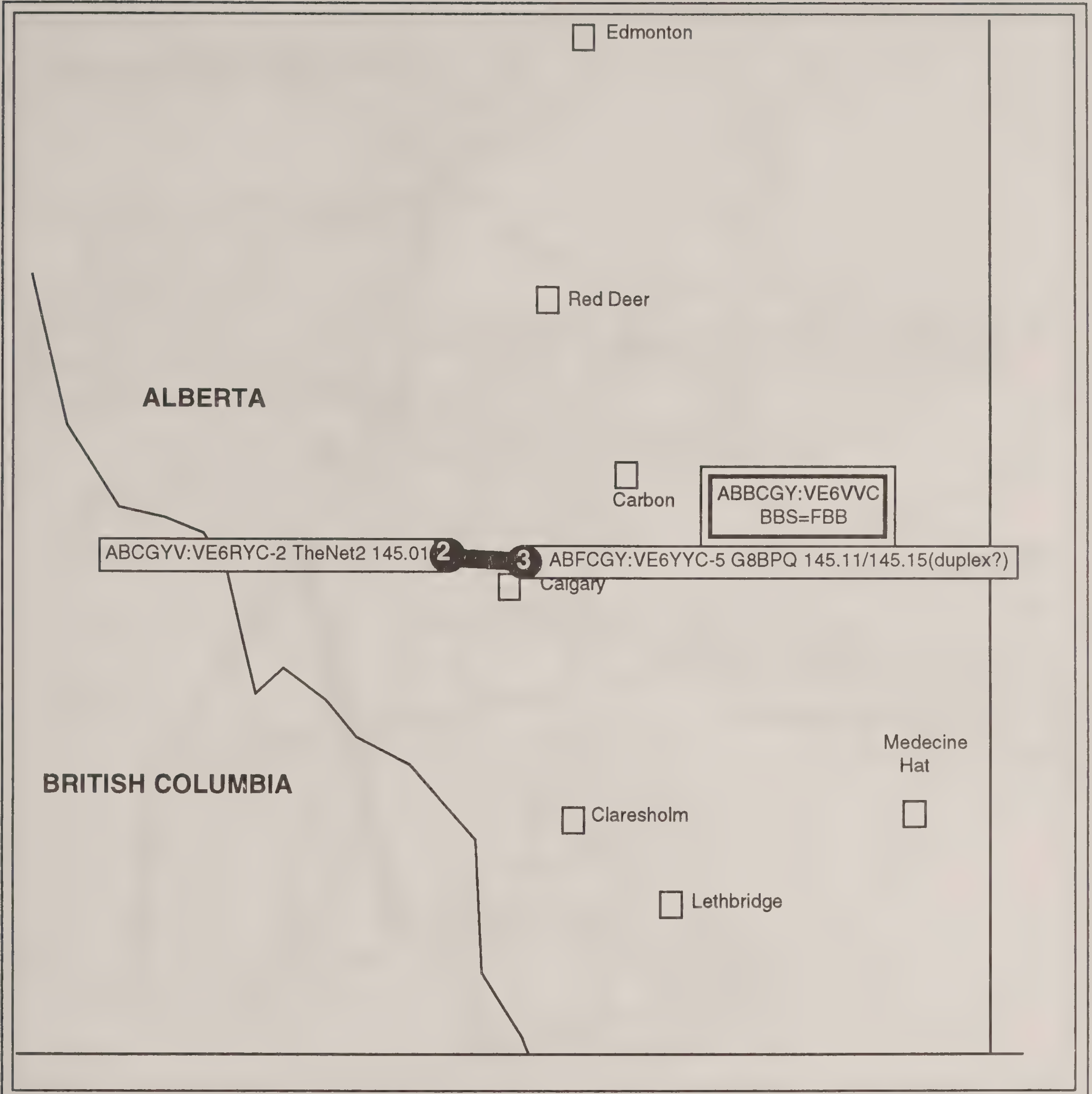
9600 Link info if baud rate not 1200 or if not simplex

Node with "n" ports (only user ports shown; L=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

Southern Alberta

☐ Packetville (City/town)

▬ point-point link

▬ hidden-transmitter-free network

— non-user-frequency network

- - - - - - low reliability link

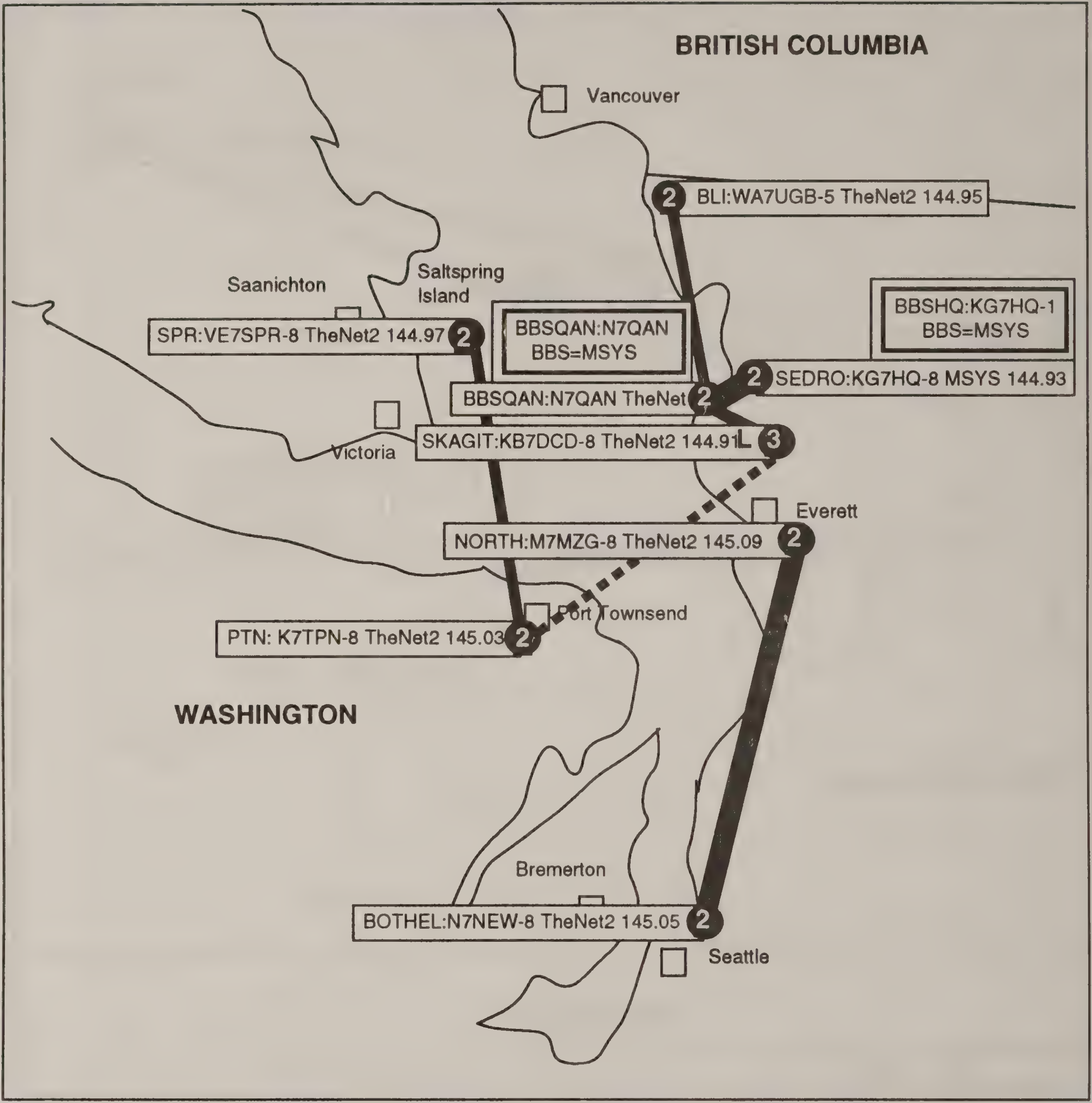
9600 Link info if baud rate not 1200 or if not simplex

Node with "**n**" ports (only user ports shown; **L**=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07**L**

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS


BRITISH COLUMBIA
Vancouver
2 BLI:WA7UGB-5 TheNet2 144.95
Saanichton
Saltspring Island
BBSHQ:KG7HQ-1
BBS=MSYS
SPR:VE7SPR-8 TheNet2 144.97 2
BBSQAN:N7QAN
BBS=MSYS
2 SEDRO:KG7HQ-8 MSYS 144.93
BBSQAN:N7QAN TheNet 2
SKAGIT:KB7DCD-8 TheNet2 144.91L 3
Victoria
Everett
NORTH:M7MZG-8 TheNet2 145.09 2
Port Townsend
PTN: K7TPN-8 TheNet2 145.03 2
WASHINGTON
Bremerton
BOTHEL:N7NEW-8 TheNet2 145.05 2
Seattle

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PNW BACKBONE PACKET SYSTEM MAP

North Puget Sound, Washington

☐ Packetville (City/town)

▬ point-point link

▬ hidden-transmitter-free network

— non-user-frequency network

- - - - - low reliability link

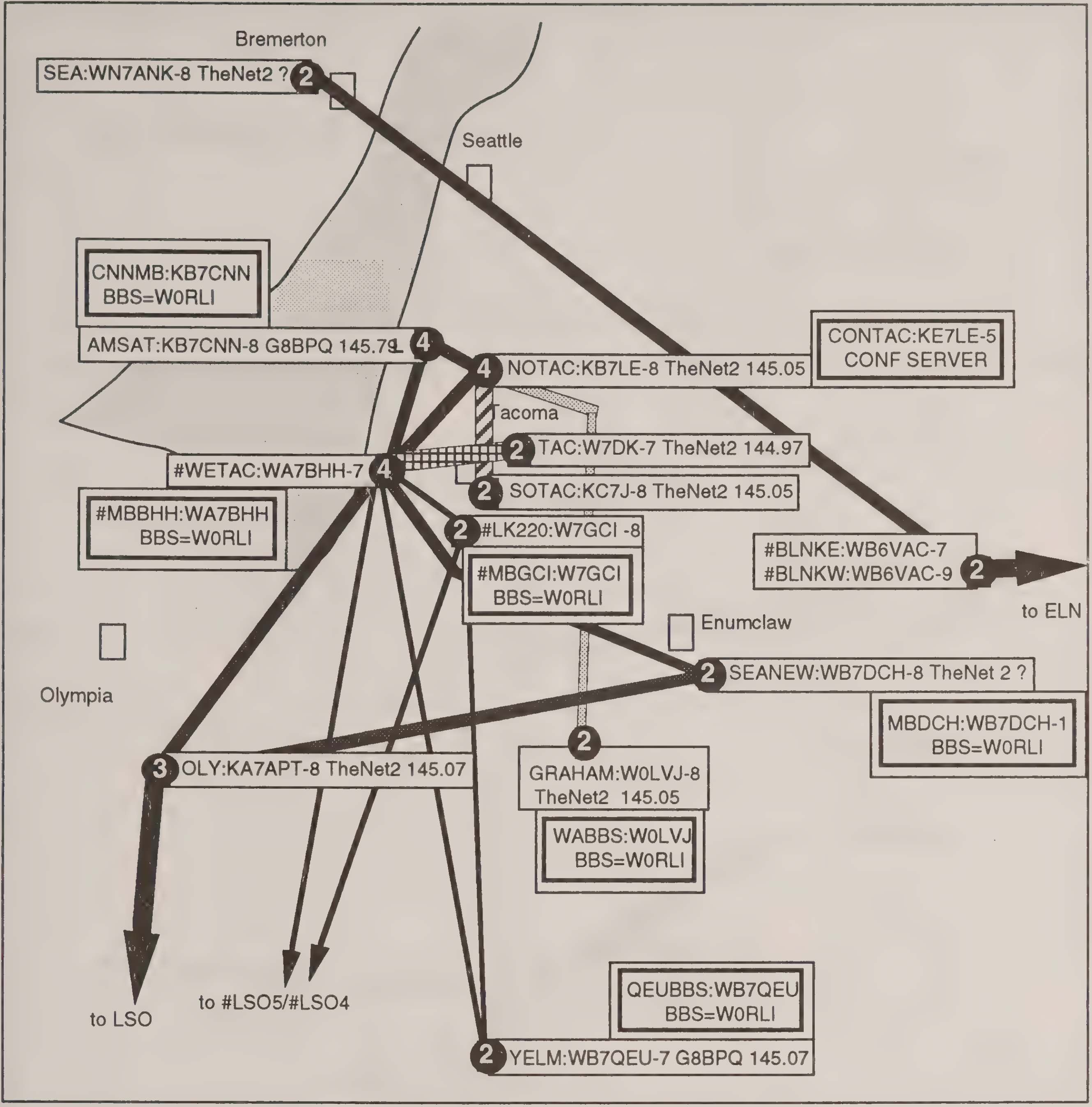
9600 Link info if baud rate not 1200 or if not simplex

Node with "**n**" ports (only user ports shown; **L**=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

South Puget Sound, Washington

☐ Packetville (City/town)

━━━ point-point link

━━━ hidden-transmitter-free network

─── non-user-frequency network

- - - - - - low reliability link

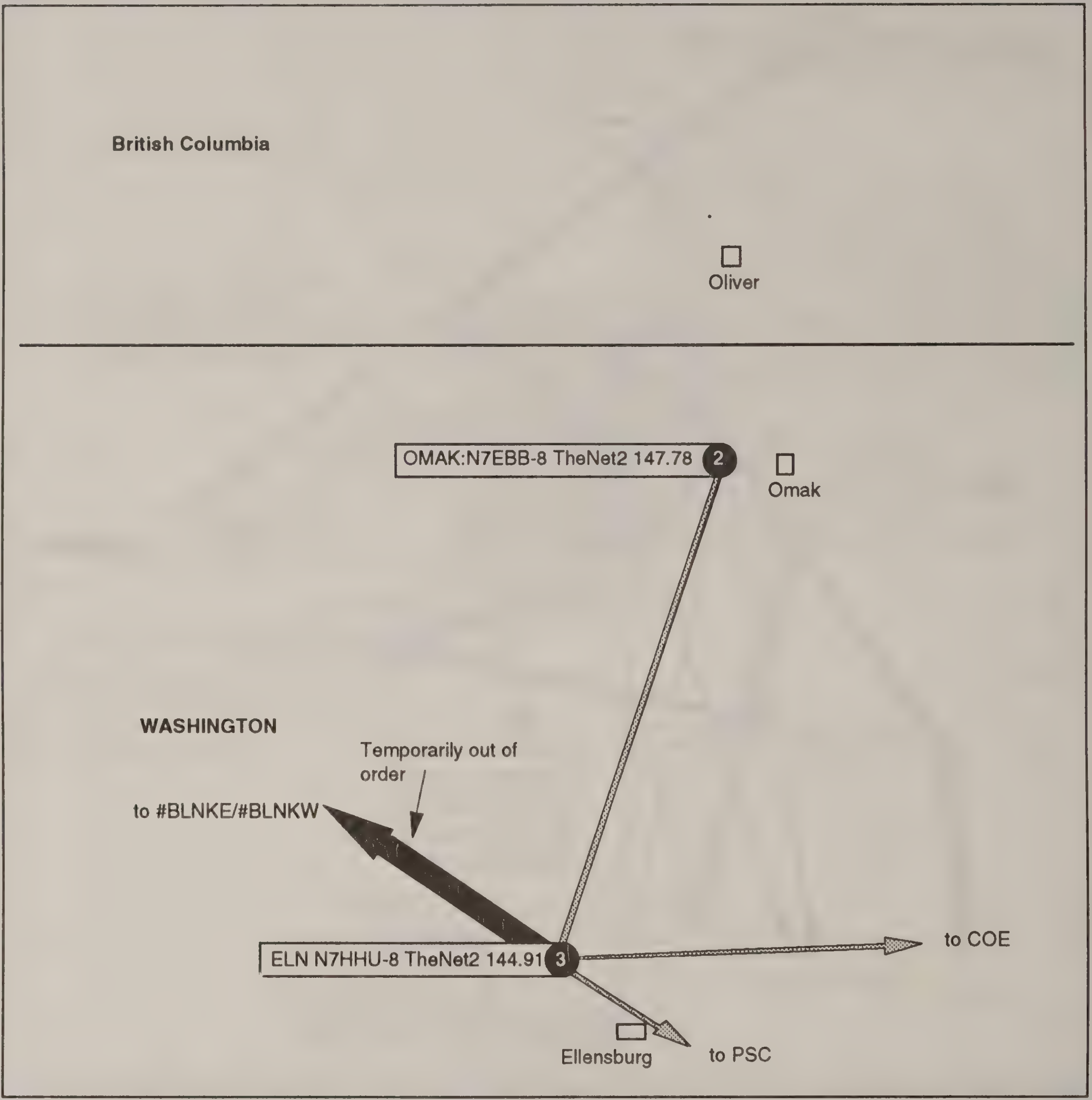
9600 Link info if baud rate not 1200 or if not simplex

Node with 'n' ports (only user ports shown; **L**=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07**L**

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

North-Central Washington

☐ Packetville (City/town)

▬ point-point link

▬ hidden-transmitter-free network

— non-user-frequency network

- - - - - - low reliability link

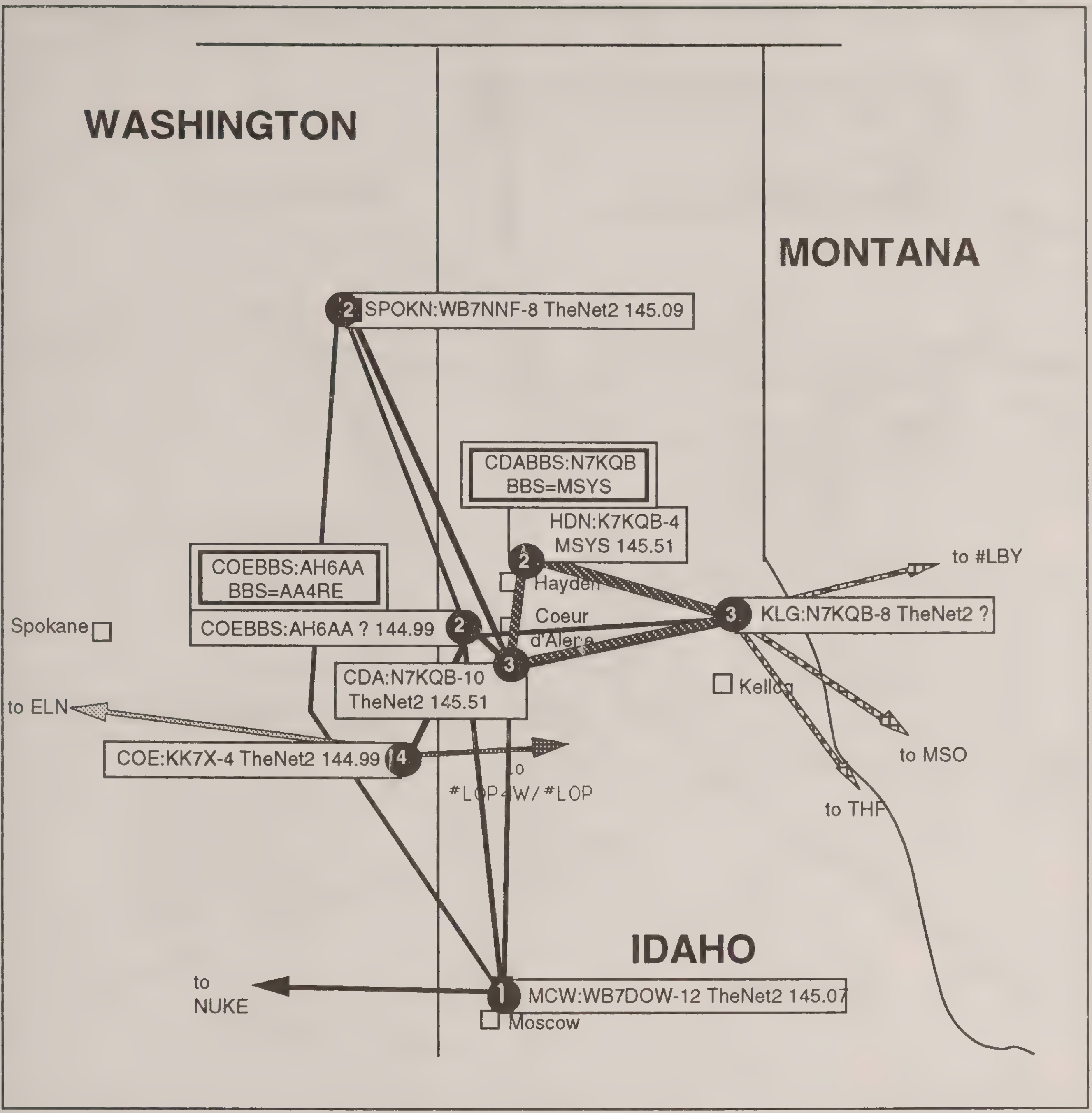
9600 Link info if baud rate not 1200 or if not simplex

Node with 'n' ports (only user ports shown; L=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

Northern Idaho

point-point link

hidden-transmitter-free network

non-user-frequency network

low reliability link

9600 Link info if baud rate not 1200 or if not simplex

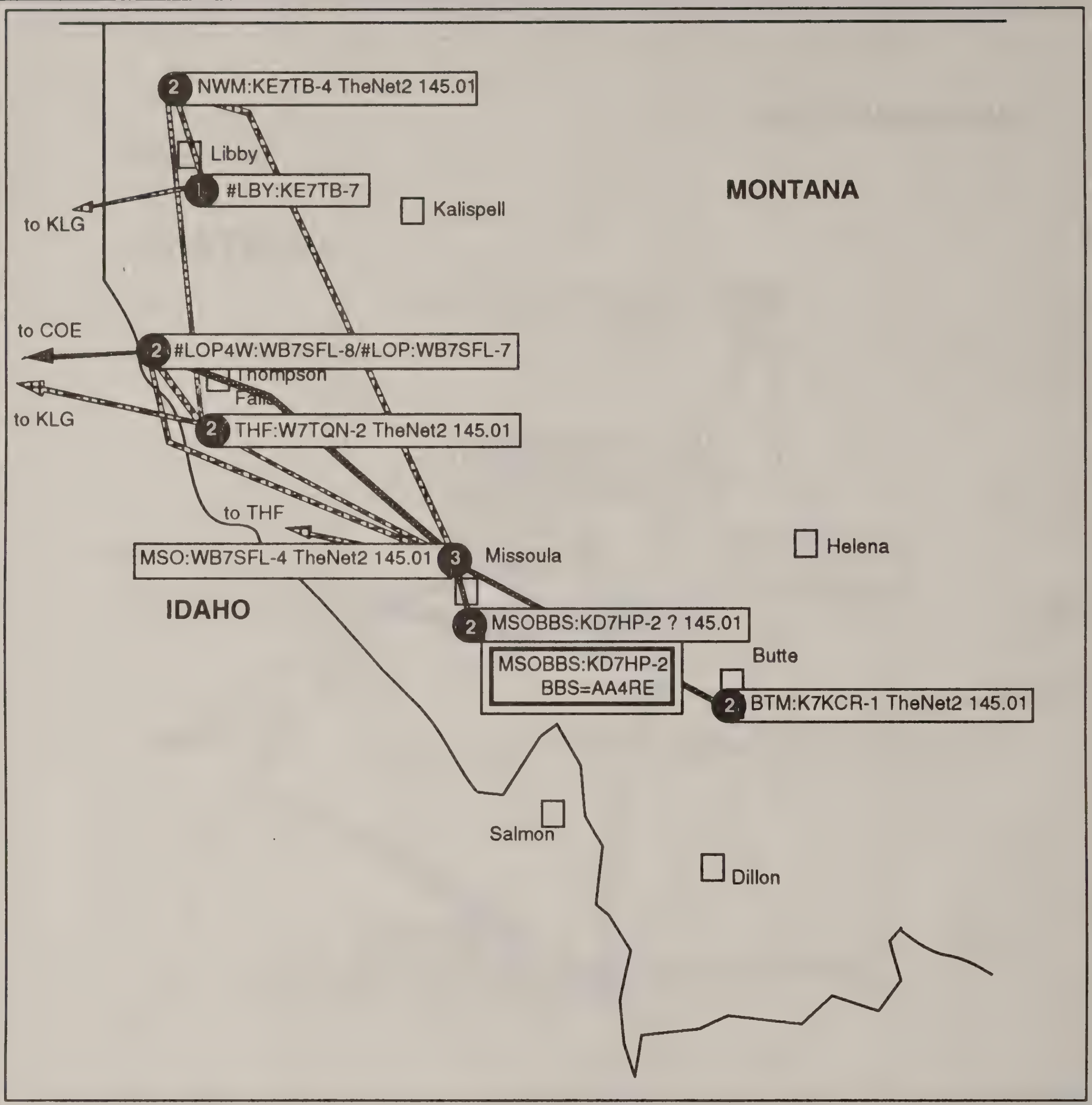
Node with "n" ports (only user ports shown; **L**=server & link free)

n XYZ:KA7ABC-1 TheNet2 145.07**L**

☐ Packetville (City/town)

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

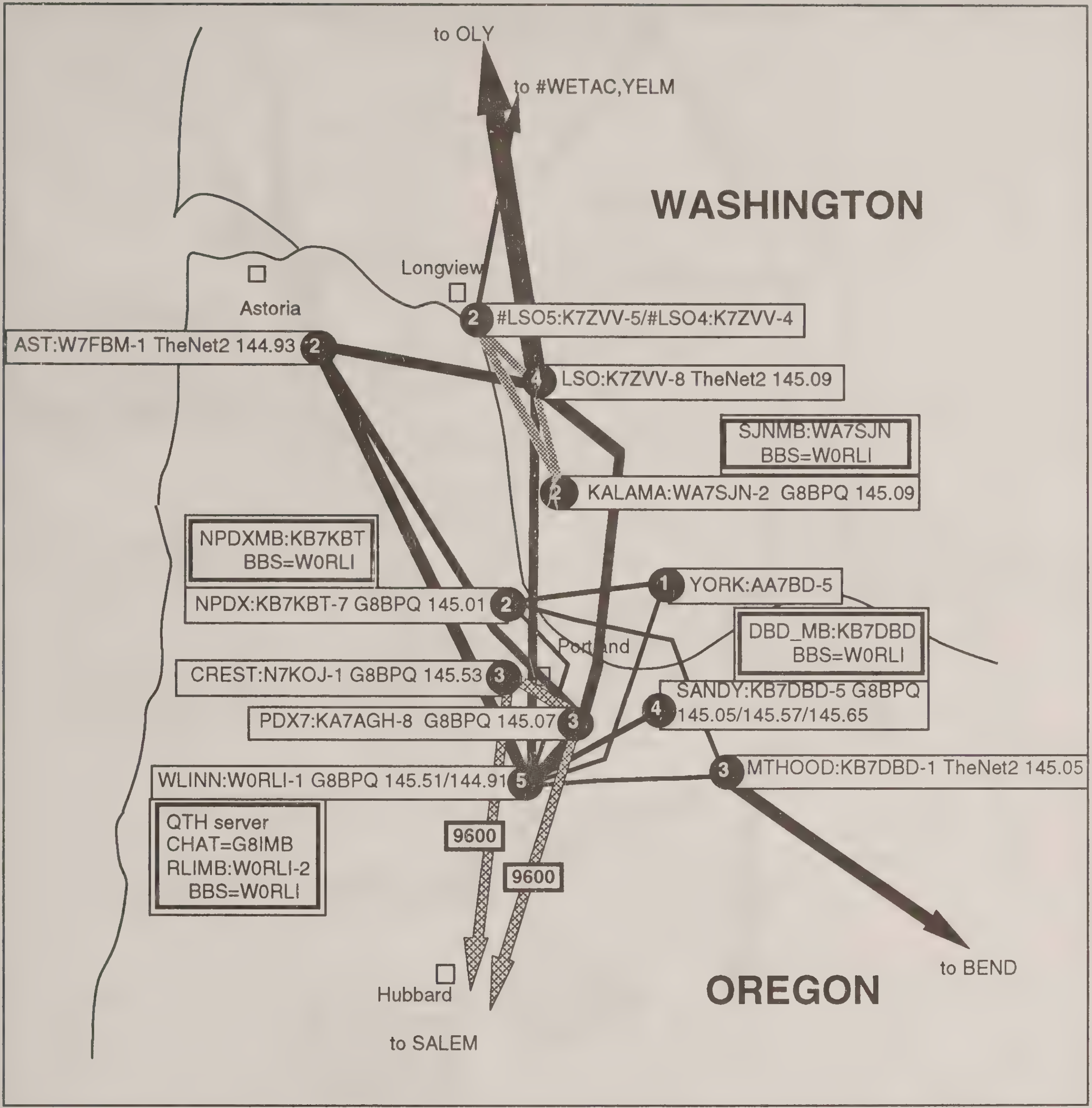
Western Montana

- point-point link
- hidden-transmitter-free network
- non-user-frequency network
- low reliability link
- 9600 Link info if baud rate not 1200 or if not simplex

Packetville (City/town)

Node with "n" ports (only user ports shown; L=server & link free) — n XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node) — ALLBBS:AA5ZZ BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

Northwest Oregon

☐ Packetville (City/town)

▬ point-point link

▬ hidden-transmitter-free network

— non-user-frequency network

- - - - - low reliability link

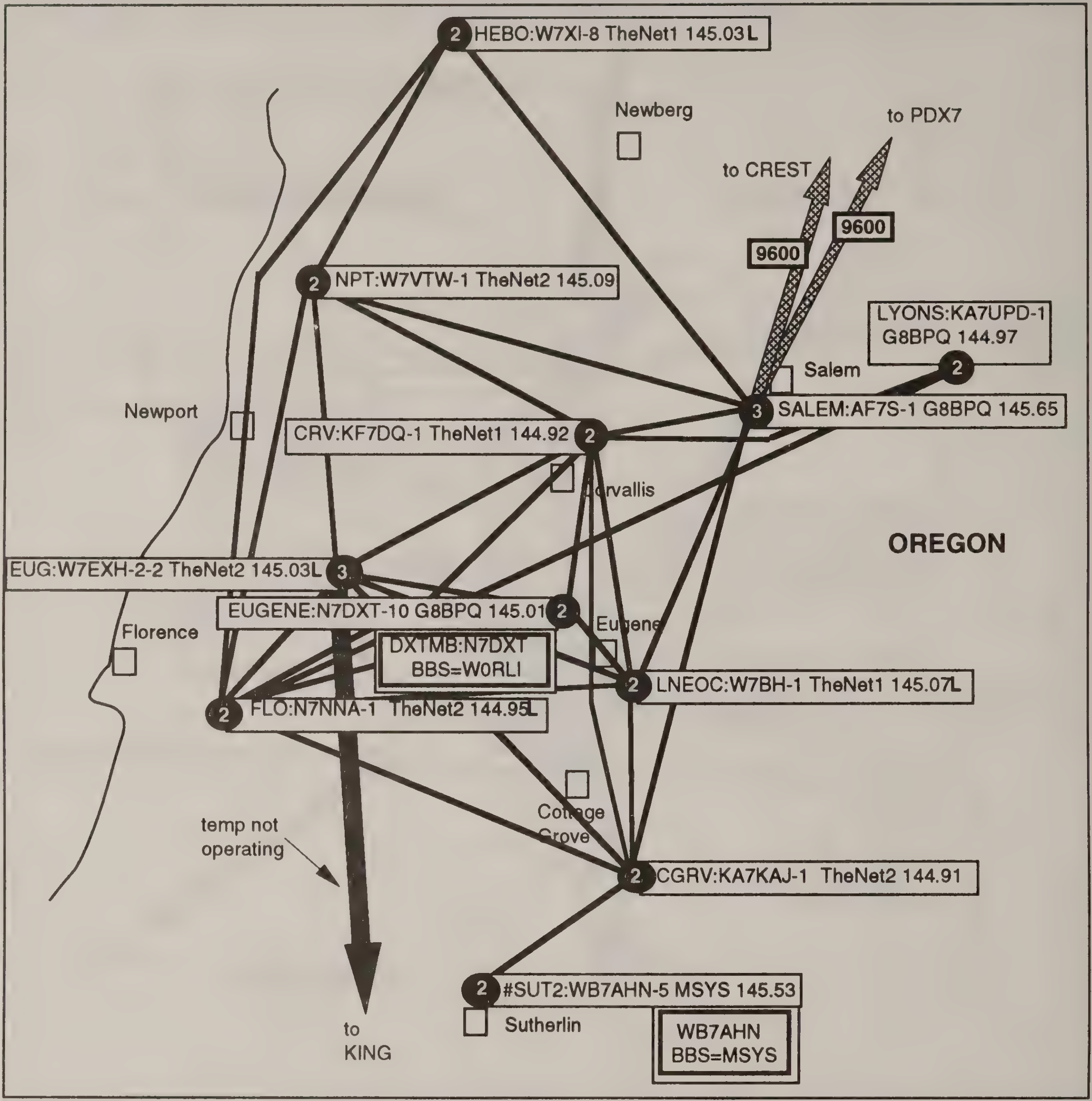
9600 Link info if baud rate not 1200 or if not simplex

Node with "**n**" ports (only user ports shown; **L**=server & link free)

● XYZ:KA7ABC-1 TheNet2 145.07**L**

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS


2 HEBO:W7XI-8 TheNet1 145.03L
Newberg
to PDX7
to CREST
9600
9600
2 NPT:W7VTW-1 TheNet2 145.09
LYONS:KA7UPD-1
G8BPQ 144.97
2
Salem
Newport
3 SALEM:AF7S-1 G8BPQ 145.65
CRV:KF7DQ-1 TheNet1 144.92 2
Corvallis
OREGON
EUG:W7EXH-2-2 TheNet2 145.03L 3
EUGENE:N7DXT-10 G8BPQ 145.01 2
Florence
Eugene
DXTMB:N7DXT
BBS=W0RLI
2 LNEOC:W7BH-1 TheNet1 145.07L
2 FLO:N7NNA-1 TheNet2 144.95L
Cottage
Grove
temp not
operating
2 CGRV:KA7KAJ-1 TheNet2 144.91
2 #SUT2:WB7AHN-5 MSYS 145.53
Sutherlin
WB7AHN
BBS=MSYS
to
KING

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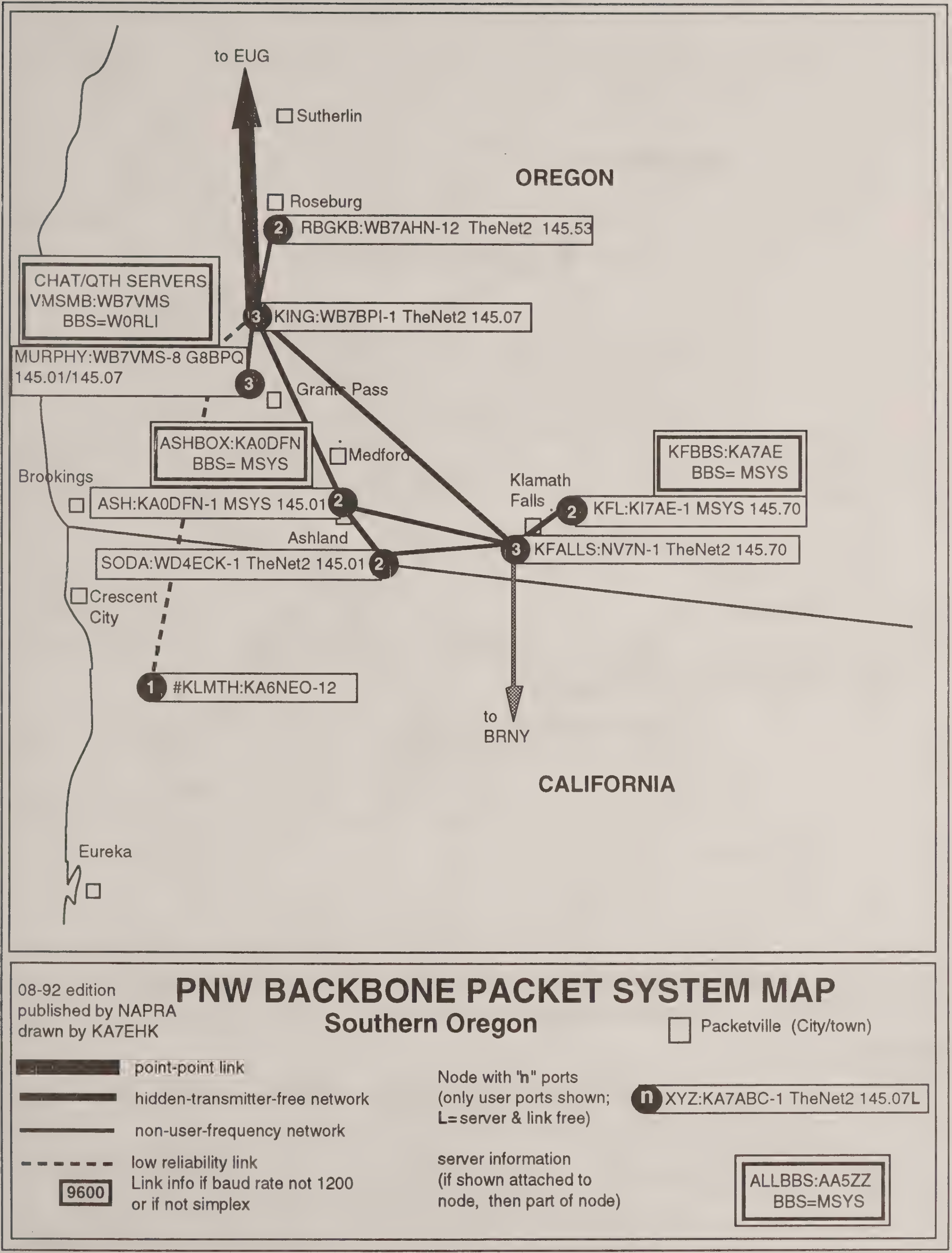
PNW BACKBONE PACKET SYSTEM MAP
Willamette Valley, Oregon

☐ Packetville (City/town)

▬	point-point link
━	hidden-transmitter-free network
―	non-user-frequency network
- - - - - -	low reliability link
9600	Link info if baud rate not 1200 or if not simplex

Node with 'n' ports (only user ports shown; **L**=server & link free) — **n** XYZ:KA7ABC-1 TheNet2 145.07**L**

server information (if shown attached to node, then part of node) — ALLBBS:AA5ZZ BBS=MSYS



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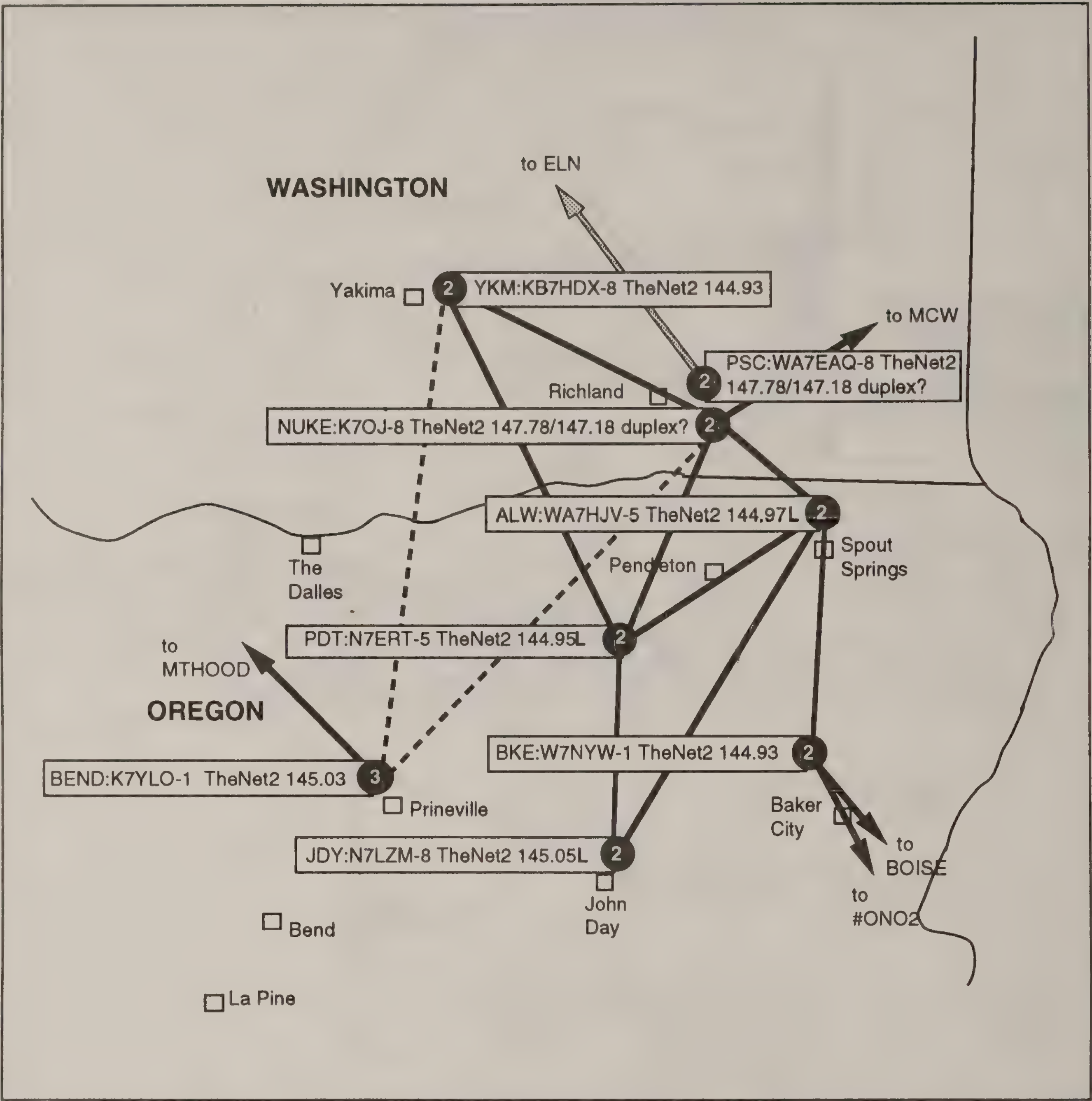
PNW BACKBONE PACKET SYSTEM MAP

Southern Oregon


WASHINGTON
to ELN
Yakima
YKM:KB7HDX-8 TheNet2 144.93
to MCW
PSC:WA7EAQ-8 TheNet2
147.78/147.18 duplex?
Richland
NUKE:K7OJ-8 TheNet2 147.78/147.18 duplex?
ALW:WA7HJV-5 TheNet2 144.97L
Spout
Springs
The
Dalles
Pendleton
PDT:N7ERT-5 TheNet2 144.95L
to
MTHOOD
OREGON
BKE:W7NYW-1 TheNet2 144.93
BEND:K7YLO-1 TheNet2 145.03
Prineville
Baker
City
JDY:N7LZM-8 TheNet2 145.05L
to
BOISE
to
#ONO2
John
Day
Bend
La Pine
2
3

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PNW BACKBONE PACKET SYSTEM MAP

Eastern Oregon/Washington

☐ Packetville (City/town)

▬ point-point link

━ hidden-transmitter-free network

— non-user-frequency network

- - - - low reliability link

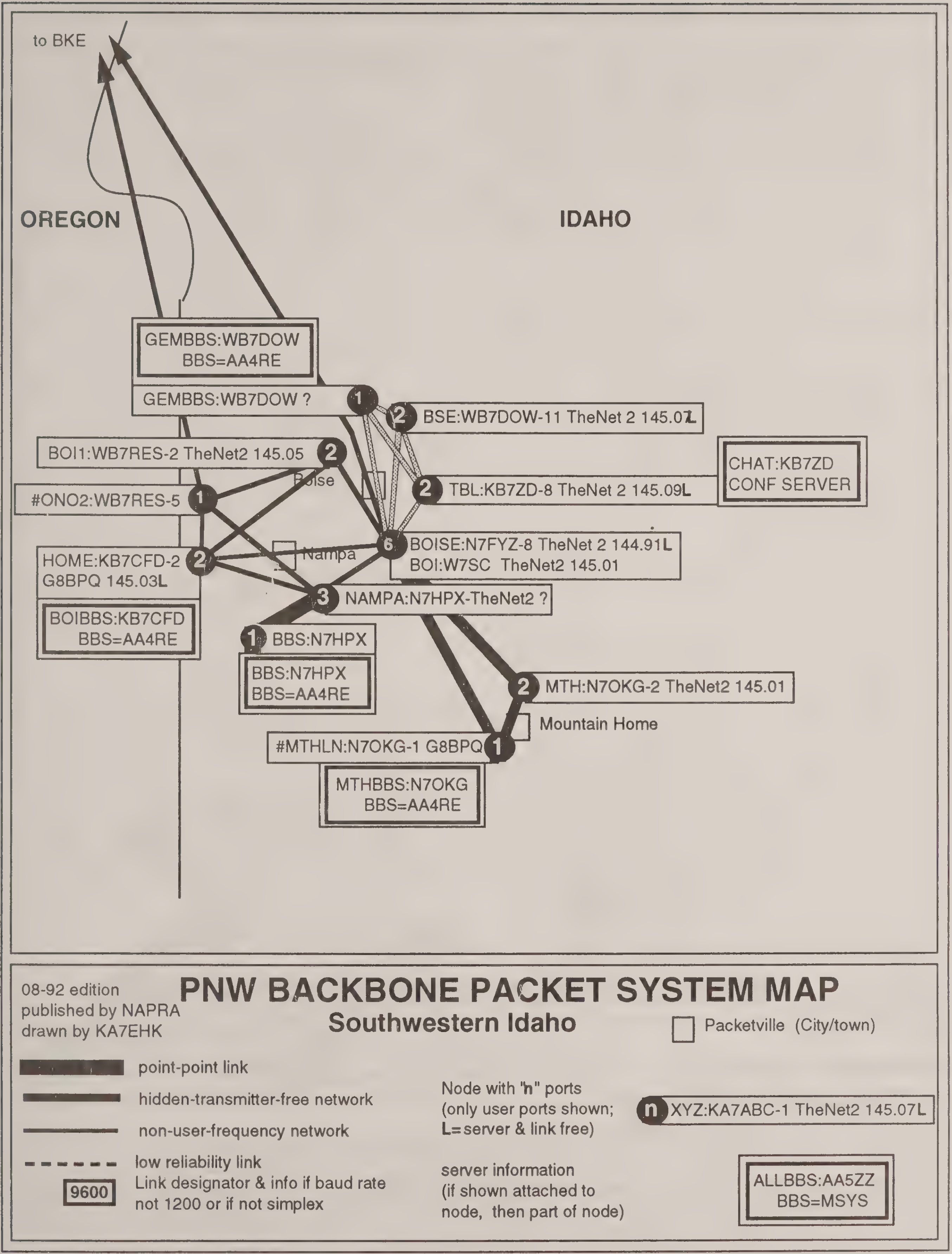
9600 Link info if baud rate not 1200 or if not simplex

Node with "n" ports (only user ports shown; L=server & link free)

(n) XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node)

ALLBBS:AA5ZZ
BBS=MSYS

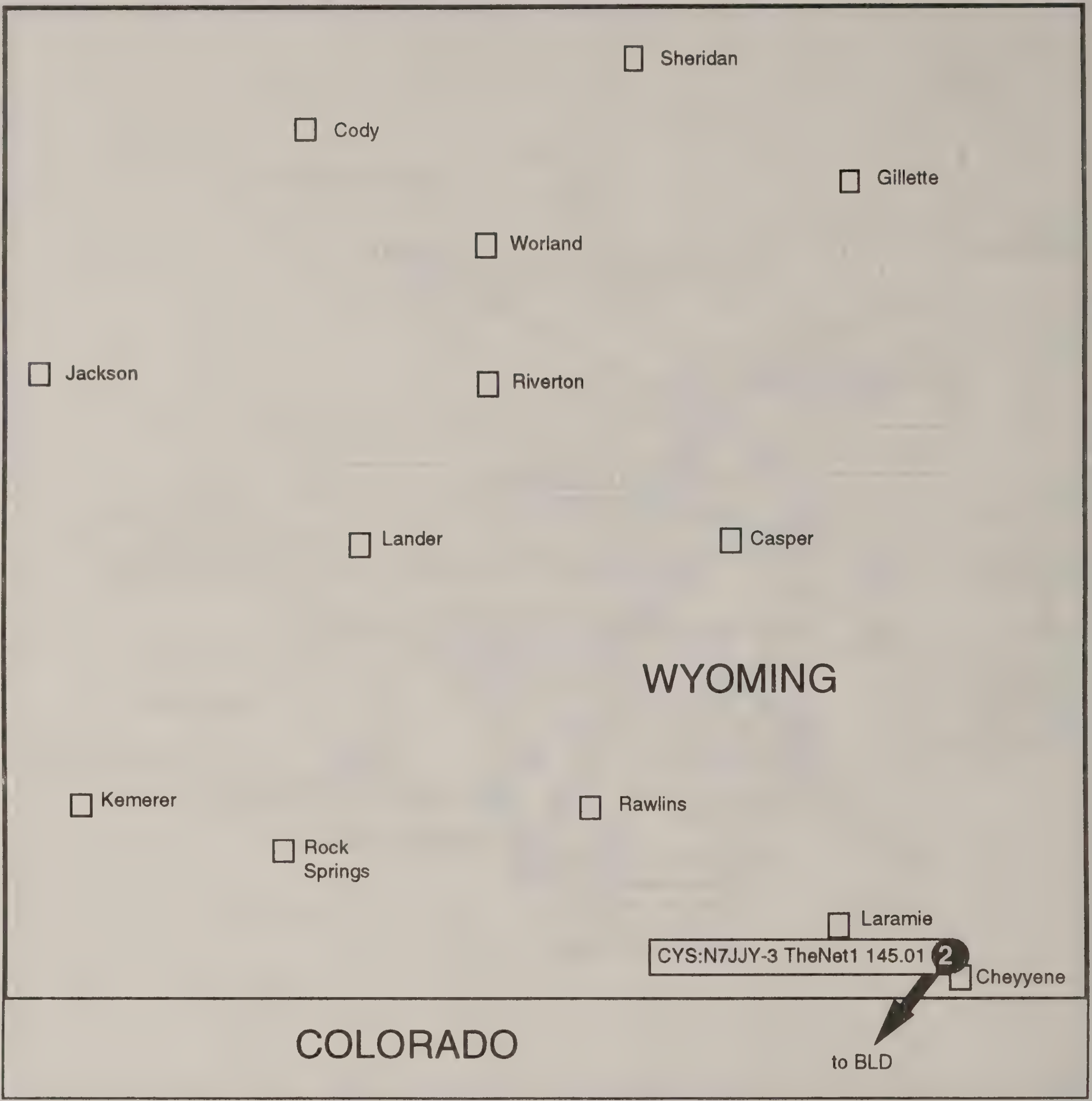


PNW BACKBONE PACKET SYSTEM MAP

Southwestern Idaho

08-92 edition
published by NAPRA
drawn by KA7EHK

to BKE
OREGON
IDAHO
GEMBBS:WB7DOW
BBS=AA4RE
GEMBBS:WB7DOW ?
1
2
BSE:WB7DOW-11 TheNet 2 145.07L
BOI1:WB7RES-2 TheNet2 145.05
2
Boise
CHAT:KB7ZD
CONF SERVER
2
TBL:KB7ZD-8 TheNet 2 145.09L
#ONO2:WB7RES-5
1
HOME:KB7CFD-2
G8BPQ 145.03L
2
Nampa
6
BOISE:N7FYZ-8 TheNet 2 144.91L
BOI:W7SC TheNet2 145.01
3
NAMPA:N7HPX-TheNet2 ?
BOIBBS:KB7CFD
BBS=AA4RE
1
BBS:N7HPX
BBS:N7HPX
BBS=AA4RE
2
MTH:N7OKG-2 TheNet2 145.01
Mountain Home
#MTHLN:N7OKG-1 G8BPQ
1
MTHBBS:N7OKG
BBS=AA4RE
Packetville (City/town)
point-point link
hidden-transmitter-free network
non-user-frequency network
low reliability link
9600
Link designator & info if baud rate not 1200 or if not simplex
Node with "n" ports (only user ports shown; L=server & link free)
n
XYZ:KA7ABC-1 TheNet2 145.07L
server information (if shown attached to node, then part of node)
ALLBBS:AA5ZZ
BBS=MSYS



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PNW BACKBONE PACKET SYSTEM MAP

▬▬▬ point-point link
━━━ hidden-transmitter-free network
─── non-user-frequency network
- - - - - low reliability link
9600 Link info if baud rate not 1200 or if not simplex

☐ Packetville (City/town)

Node with 'n' ports (only user ports shown; **L**=server & link free)
n XYZ:KA7ABC-1 TheNet2 145.07L

server information (if shown attached to node, then part of node)
ALLBBS:AA5ZZ
BBS=MSYS

NEDA HexiPus™ Order Form

Use this order form when purchasing HexiPus™ board kits by mail from the POBox or from a NEDA consignee at a special event.

Use the latest version of this form if possible. See bottom of the page for release date.

You do not have to pay shipping if you are getting the HexiPus™ from a NEDA agent/consignee.

To Consignee: Please make sure that each purchase is handled with one of these forms. Correctly document funds exchanged, check numbers, purchaser's name and address if not by cash; and quantities of each kit type delivered.

To Mail Purchaser: Please fill out all sections of the form except those marked "For Office Use Only".

This will help our treasurer track the sales of the product so that our club may be run efficiently and above board.

Thank you and good luck with your node!

Purchaser Information

Name

Address

City

State/Province

Country

Zip

Callsign (Optional)

Date Purchased

✔Cash ☐ Check Number ✔US bank ☐ ✔Canadian ☐

Amount ↓

If funds are Canadian compute exchange rate as best you can. If check is drawn on a Canadian bank add $15 U.S. to total.

# of Board+Diode Kits (US)		# of Complete Kits (US)
x$22.95	+	x$29.95

subtotal in US funds:

If by mail add $4.00 per unit
No mail delivery outside U.S.

Total in US funds:

Agent/Consignee Information

Name

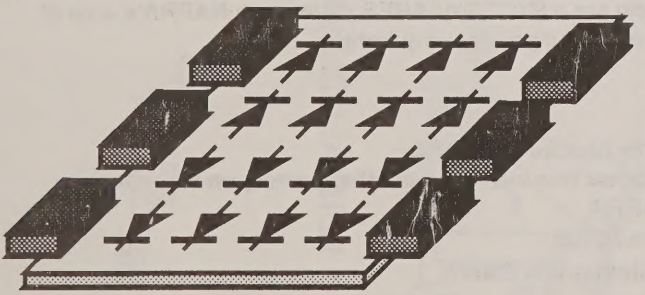
Event

Please specify the connector gender required.

Please check only one box:

☐ DB-9 Male Connectors

☐ DB-9 Female Connectors



The NEDA HexiPus™ Kit is, as of this printing, available in three formats. Board with diodes; Board with diodes and female connectors; or board with diodes and male connectors. Please specify your preference in the notes section above. The shipper will give you male connectors if female connectors run out.

Send orders to :
NEDA HEXIPUS
PO Box 563
Manchester, NH 03105

For Office Use Only (Treasurer)

Date Rx by Treasurer: **Date Tx to HexiPus™ Cmty** **Deposit**

Order Form Date: 09/16/91

Northwest Amateur Packet Radio Association Membership Application

Welcome to NAPRA and Packet Radio. This is the official membership form for NAPRA.

Some general information about NAPRA:

NAPRA is a club formed in the mid 80s for the purpose of developing and promoting packet radio technology. NAPRA's purpose and bylaws were changed in spring of 1992 to focus on the promotion issues involved in modern day packet radio networking.

NAPRA's area of interest includes Montana, Wyoming, Idaho, Oregon, Washington, and southern parts of Alberta and British Columbia.

NAPRA publishes the *Dedicated Link* as a periodical four times a year. The *NAPRA Notebook* is published each year as well. Subscribers and Voting Members receive these documents by mail. The club distributes the magazine at flea markets as well.

NAPRA's administration is based on 6 directors, 6 director alternates and several appointees. The six directors of the board are elected by the membership for two year terms. The six alternates are appointed by the elected board. Three of the directors are elected each year. The appointees include recording secretary, membership secretary, treasurer and editor. The board meets four times a year in a location central to the club's area of interest. Those meetings are open to the voting membership and are fully documented in the minutes which are published in *The Dedicated Link*. The club bylaws are available with a SASE to the club's mailing address.

NAPRA members sponsor general interest and specific interest packet meetings throughout the region of interest of the club. Those meetings may be announced in *The Dedicated Link* and meeting results may also be published. Other packet radio clubs can request space in *The Dedicated Link*. NAPRA's focus is to publish information on packet radio and packet radio networking.

The dues structure of NAPRA is as follows:

Subscription membership in the United States	$15
Voting membership in the United States	$25
Subscription membership in Canada	$20
Voting membership in Canada	$30
Upgrade to voting membership all countries	$10

All membership rates are US funds only. Canadian applicants should send funds in a Postal or Bank Money-Order in US funds. Non-US or Canada applicants, libraries and other Amateur Radio clubs should contact NAPRA at the mailing address for information and rates. Thank you. This form is dated Q11-091792.

Membership Applying for - Check one box:

US Associate/Subscription Membership, $15/year ☐	**US Full/Voting Membership, $25/year** ☐
Canada Associate/Subscription Membership. $20/year ☐	**Canada Full/Voting Membership $30/year** ☐
Upgrade to Full/Voting Membership, $10/year ☐	**Information Update Only** ☐

Check here if this is a RENEWAL or if you've ever been a NAPRA member before. ☐

Enter # of years you wish to pay for: **Amount Enclosed:**

Name:

Address:

City: **State or Province:**

Country: **Zip:**

Callsign: **Packet Home BBS:**

@ .

Example: KA2DEW @ N7IIJ.wa

Home Phone:

Other Computer addresses we can contact you at:
(TCP/IP, FIDO Net, Internet, CompuServe etc.)

If a NAPRA member gave you this form, what is his or her callsign?

If you are a RACES or ARES member in NAPRA's area of interest, put your county here:

Make Checks to NAPRA.
Address this form and all other correspondence to:
NAPRA
Box 70405
Bellevue WA 98007

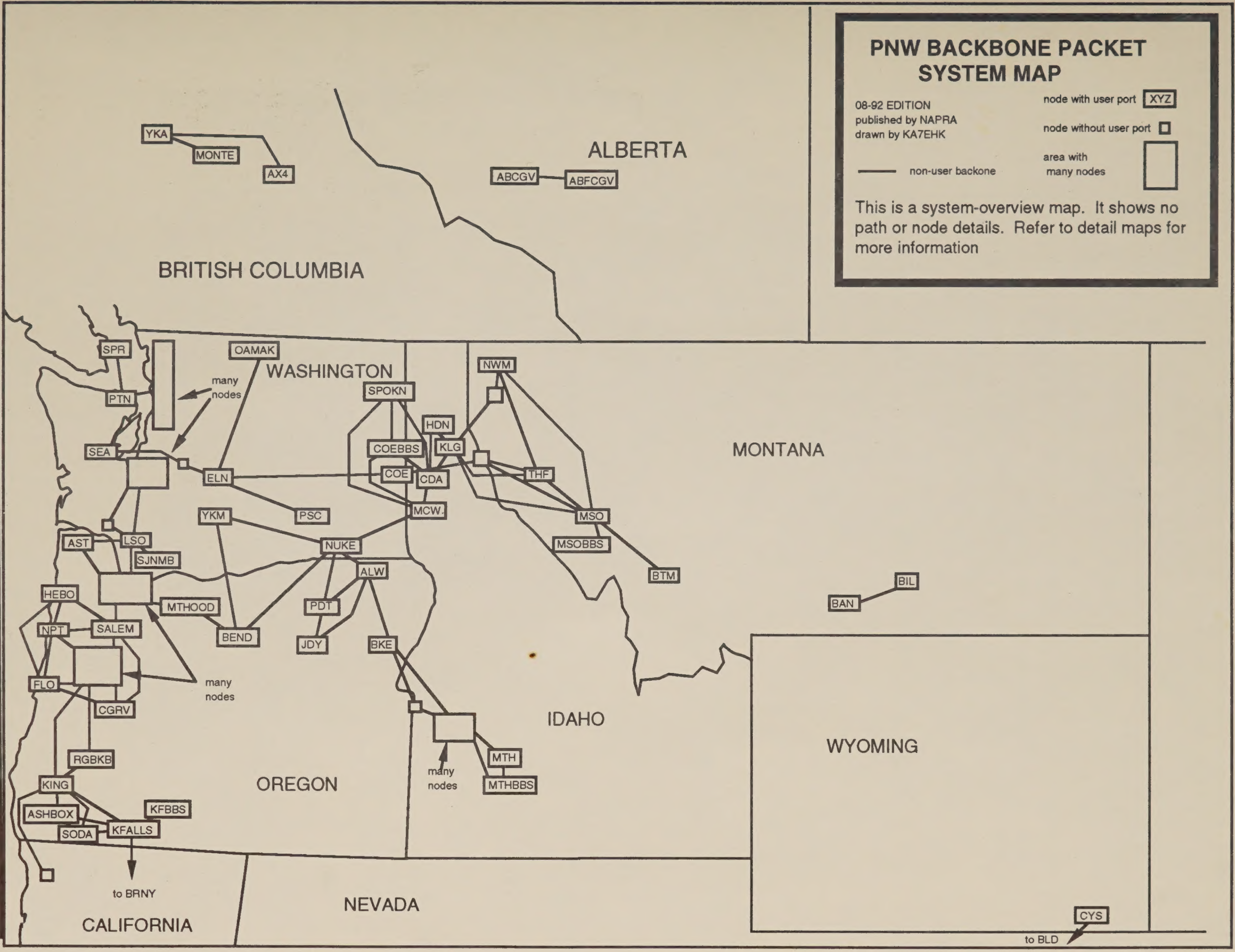
For Membership Secretary Use Only

Initial:

Amount:

Funds/Form Rxed	**Funds to Treas**	**Saved in DB**	**Intro Pkg Mailed**	**Form to Rec Sec**

Date:



PNW BACKBONE PACKET SYSTEM MAP

08-92 EDITION
published by NAPRA
drawn by KA7EHK

This is a system-overview map. It shows no path or node details. Refer to detail maps for more information

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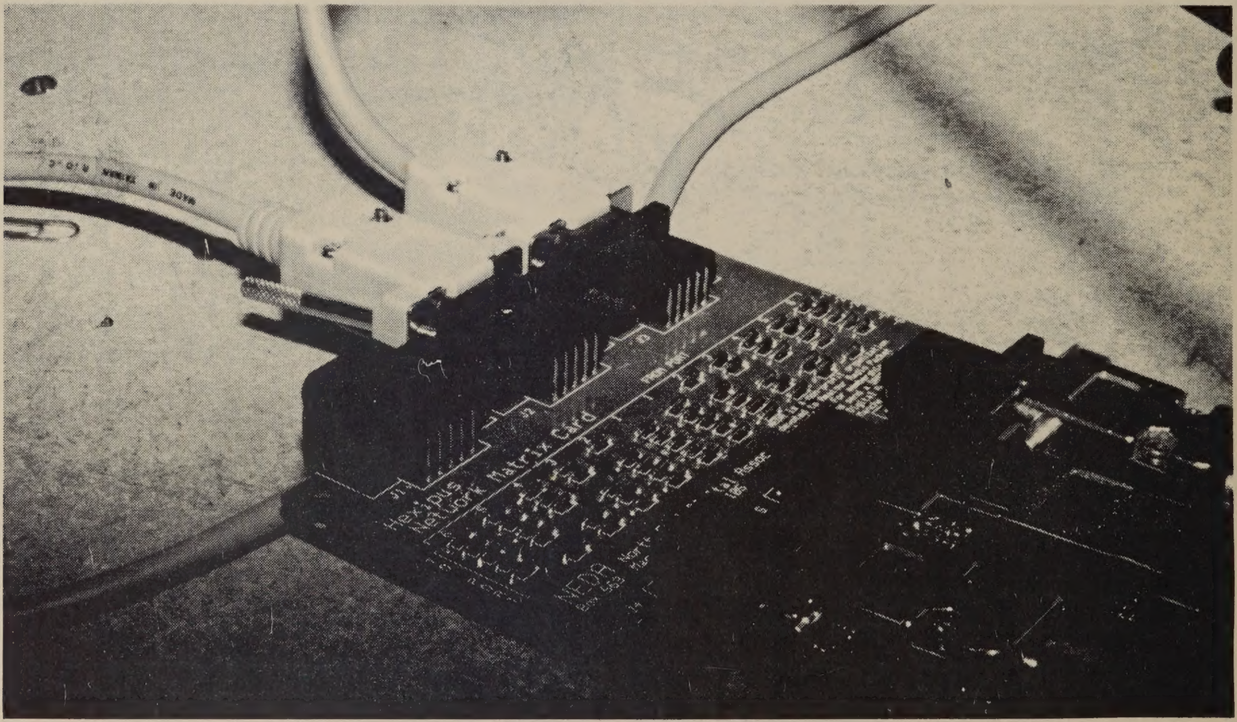
The NAPRA Dedicated Link is the official journal of the Northwest Amateur Packet Radio Association. It is published four times annually. Distribution is around 500 copies including paid members and public relations purposes. Membership at the time of publication was 130.

NAPRA is a non-profit association formed for the purpose of promoting free access general purpose amateur radio packet networking.

NAPRA's mailing address is
Box 70405 Bellevue WA 98007



The NEDA HexiPus™ is used to connect up to 6 TNCs together to form a network building block. To order a HexiPus™ see the order form on page 49.